THE OFFICIAL GUIDE

PORTAL 2™

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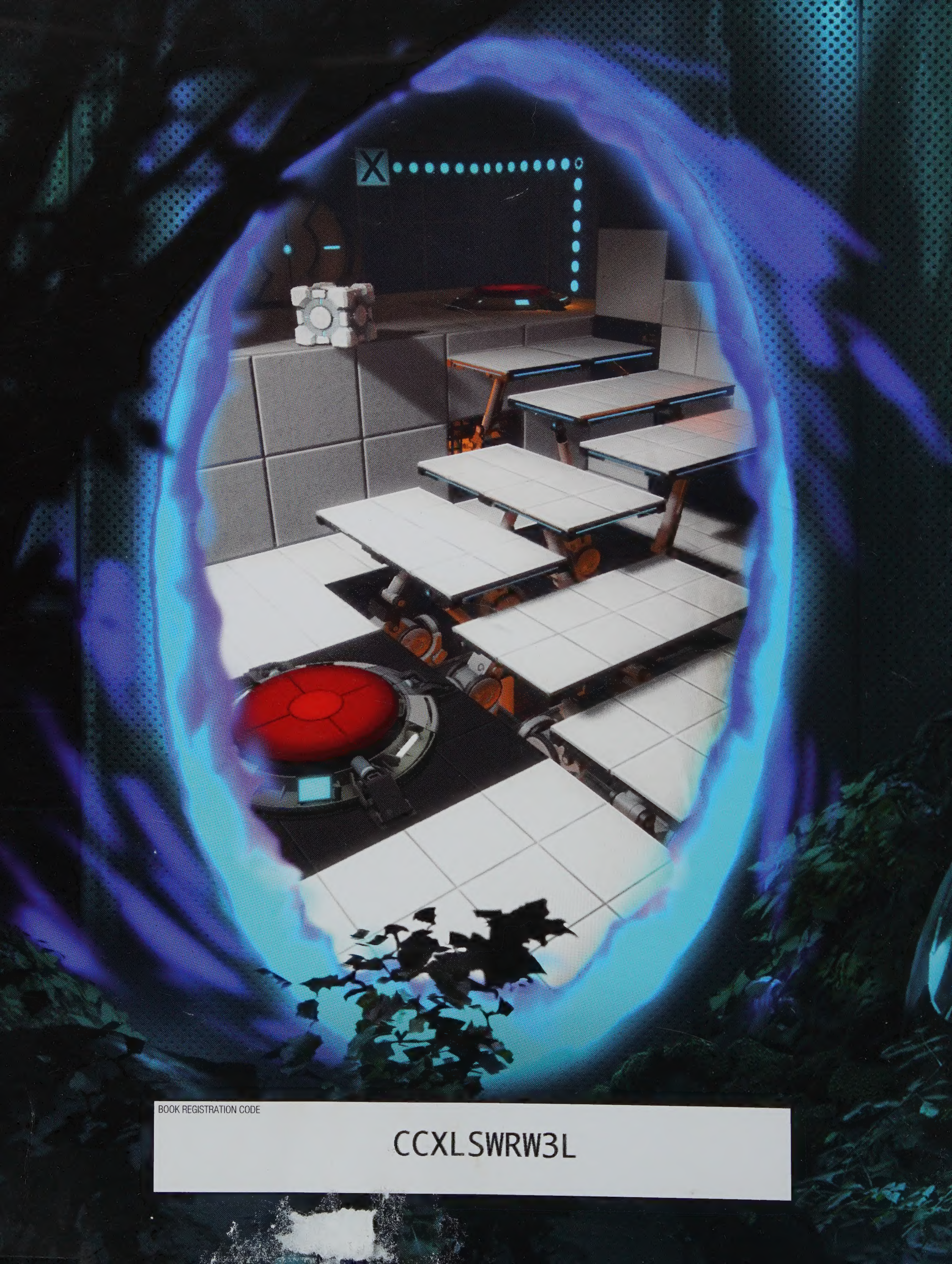

BOOK REGISTRATION CODE

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Welcome to Science

For over a decade, Future Press has published game guides designed to enrich everyone's gaming experience. To use GLaDOS' terminology, you could probably call us the Gaming Enrichment Center. The prime goal of a well- made game guide is not to spoil the gaming experience, but to improve it. Our guides provide strategies for the beginner that enable them to fully enjoy – and ultimately master – the game, while at the same time providing advanced assistance for the expert so that they reach their goals more quickly, or even exceed them.

But how do we design a game guide when the game's biggest rewards lie in coming up with the solution to a puzzle on your own? We came up with a simple yet effective system that leads the reader gently to the full solution, so that at any time during the process, they can opt to start thinking about the solution on their own, ensuring that they still get to enjoy the sense of accomplishment.

Another delicate challenge for us was to meet the demand of two totally different groups of players. Many of the people who are going to play Portal 2 have never played the original Portal, so for them, we've started from scratch, explaining the basic elements of the game's system and even telling the story of the original Portal. This way, people can appreciate the sequel all the more. The other group is quite the opposite, with a completely different set of demands: long-time fans who fell in love with the Companion Cube, smiled whenever they heard the word "cake", conspired about the story behind Aperture Science and suspected their personal computer of lying. With more than 60 pages in this guide dedicated to secrets, stories, developer interviews and artwork that no Portal fan has ever seen before, we're hoping that this guide can act as an encyclopedia of everything about Portal 2, as well as being the perfect companion for anyone seeking to get the most out of this amazing game.

While creating this guide we've tried to provide alternate solutions for as many of the puzzles as possible. These are included so that you can see some examples of what is possible within the game. Use them as a starting point in combination with the advanced techniques we describe in order to develop your own unique solutions. Our advanced solutions are by no means the best possible ones, as creative players are certain to discover new ones for years to come. In fact, new solutions and techniques are still being found in the original Portal, even today.

Finally, should Valve release any DLC or additional content for Portal 2, then we'll keep you covered with online additions to this guide, and new videos to show how the strategies have progressed. The best thing is, as an owner of this guide, you'll have access to this extra material for free.

Using this guide

First and foremost: this book contains tons of Portal 2 information, possibly more than you ever wanted to know, and certainly more than you need to know when first playing the game. This means that even if you have played the game through, the guide can still show you things to discover. You'll find out how to solve chambers differently and where to catch any story details you might have missed during your first time through. In contrast with most other game guides, this book doesn't lose its value the further you play through the game. So, sit back, try to get through without our (or anyone else's) help. That said, in case you do need help, here is a quick rundown of the guide's chapters and sections, so you know where to go to find what you need.

Spoiler levels

Each section of the guide is labeled with 'spoiler levels' that warns you of how much information is revealed and thus potentially spoiling the game for you. The spoiler level is shown as dots at the bottom of each left-hand side page. There are two dots per level and eight dots is the maximum level, so that would be spoiler level 4. (Our design team opted for two dots per level rather than the easier-to-recognize one dot per level since it looks better in layout.) The same thing is shown at each right-hand side page, but blue bars are used instead of dots: this time, each blue bar means one spoiler level (not that we wanted to confuse anyone...).

Chapter 01: Basic Science

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Also known as 'System Basics', this chapter provides an introduction to the various elements in the game and ensures that you're familiar with the game's general flow. You can think of this chapter as a far more complete version of the game manual, with each game element covered in greater detail, so that first-time Portal players understand the logic and possibilities behind this game more clearly.

Chapter 02: Solitary Testing Procedure

Also known as 'Single Player Walkthrough', this is your first place to go when you are stuck in a certain chamber or simply don't know how to proceed. Since solving the puzzles on your own is where the fun in Portal 2 comes from, this walkthrough features three distinct sections, each of which reveals the solutions in progressively more direct ways.

Section 1: Overview and Page References

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This section functions as a table of contents just for the Single Player walkthrough. Whenever you need help in the campaign, go here first and decide what level of help you need to avoid seeing pages that you don't want to at this stage. This overview page has a marking at the edge so that it can easily be found when you gently press your thumb against the book block.

Section 2: Preliminary Textual Assistance

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This is the first level of help whenever you are stuck in a certain chamber. This section presents carefully selected text hints for most areas of the game, which should gently push you in the right direction. Don't expect that these hints will actually tell you outright what to do, as some even speak in puzzles themselves. So you'll still have to figure out the solution on your own.

Section 3: Preliminary Visual Assistance

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This section works in a similar way to the previous one, but instead of giving textual hints it shows visual hints using screenshots from the game. Like the text hints, these are selected so that they don't give away too much of the solution, letting you do most of the thinking. However, since these screenshots give away a little bit more than the text hints, this section has a slightly higher spoiler level.

Section 4: A Return to Science

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Ok, once you've finally arrived here, it probably means you really got stuck. From time to time Portal 2 does require some crazy thinking, so it's better to check here than watching somebody else doing it (or even worse, stop playing the game). Sometimes the first few sentences of the solution may be enough for you to get to the point. If you have this feeling, go back to the game and give it a try. However, this step-by-step walkthrough has an additional purpose: Once you have played through a chamber, come here and see if you have found a different solution. This way, you learn how Portal 2 can be played using different techniques. This is especially true for the alternate/advanced solution we provide for a selection of chambers.

Chapter 3: Cooperative Testing Initiative

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It's time for cooperative thinking. Since this whole chapter is designed with the exact same hint system from Chapter 2 in mind, you can simply refer to the explanations above. Differences only occur in the actual step-by-step walkthrough, where we added the element of time using a timeline-like table along with one column per robot. So, make sure to pay attention to the rows of each task as they tell you what to do first. Any time the tasks of both robots are in the same row, the actions should be performed at the same time.

Chapter 4: Enrichment Completion Area

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This chapter helps you in completing Portal 2 to its fullest. Unlike most other guides, this section doesn't just list all Trophies/Achievements, but it actually explains step-by-step how to unlock them all and truly complete the game. Further, all secrets and easter eggs we have discovered in the game are presented here. As a special bonus, our author Cody Miller – a famous Portal speedrunnner – reveals his latest shortcuts through the original Portal, giving away the secrets from his latest speedrun through the game. We're sure this will give you a whole new way of thinking with portals.

Chapter 5: Supplemental Materials

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Feature 1: The World of Portal

This amazing chapter is for the true Portal fan. Make sure, however, that you have played through the game at least once before you actually go there. It not only reveals the full story of the two Portal games (even we missed a few mind-bending story elements the first time round), but also features the timeline of Aperture Science and more extra bonuses.

Feature 2: An Audience with Valve
The book then closes with an exclusive 3-hour interview with some key members of the Portal and Portal 2 team, in which they talk about things no other humans have heard before. Thanks again, guys, for the amazing time at your studio and your exceptional support!

Feature 3: The Art of Portal
This whole chapter is decorated with amazing Portal and Portal 2 artwork – most of which has never been released. From concepts and beautifully drawn illustrations to rendered design material – this store of art is certainly a treasure for us, and will be for every Portal fan.

Further Enhancement

The following features are not really common with game guides, so we thought we should point them out in case this is your first Future Press guide.

Quick chapter & section finder

Subtle markings make navigation through this 368 page guide a little easier. Cast a glance at the edge of a right-hand side page (starting at chapter 1) and you'll see that the current chapter and section are always displayed. The chapter name (regular font) and chapter section (bold font) make it easy to see where you are. The current chapter number is also 'hidden' in the orange dots at the bottom of almost each page. (The decision to use two dots per chapter was another instance where the design team wouldn't budge.)

Movie Codes

If, despite our great efforts in making the solution to every part of the game as clear as possible, you can not figure out how to get through a chamber, this is a feature you will appreciate. A special feature of selected Future Press game guides – including this one – are Movie Codes. Many strategies, techniques and tricks are tagged with a Movie Code consisting of a five-digit number. Enter this number on our website and a movie will pop up, allowing you to see the referenced topic in motion. For an even simpler experience, download our brand new Movie Code app with your iOS or Android device at **www.future-press.com/app** and simply scan the codes with the integrated QR reader. Note that the QR codes do not work with other QR readers. These are the steps required:

1) Create an account
Create an account at future-press.com (if you haven't already).

2) Connect your guide to your profile
Log in and click on "MY PROFILE". Enter the unique BOOK REGISTRATION CODE found on the interior front cover and click/tap "REGISTER". Your guide is now connected with your account. Note: You only need to do this once.

3) Watch the movies
Enter the number into the MOVIE CODE field on our website and click "SUBMIT". For app users, simply scan the QR codes using the integrated reader of our app. If you can't see a specific movie, you are either not logged in with your account, or the movie file isn't available yet. Please be patient.

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The Story So Far...

Here we will give you a brief overview of the story of Portal 1 so that you are familiar with the world of Portal. This introduction will be brief, but will touch on the highpoints so that you are better prepared to submerge yourself into the world of Portal 2. For a more complete look at the world of Portal and how it fits into the Half-Life Universe, please refer to the Enrichment Completion Area of this guide.

Opening

Portal takes place at the mysterious "Enrichment Center" of Aperture Science, Inc. The player's character, Chell, awakens in a stasis bed where she has been kept in suspended animation for an undisclosed amount of time. Chell immediately hears a computerized female voice over the intercom system. The voice belongs to GLaDOS (Genetic Lifeform and Disk Operating System), a powerful sentient AI computer that is in control of the Enrichment Center.

GLaDOS informs Chell that testing is about to begin and opens a portal that lets Chell out of the doorless Relaxation Vault. The testing Chell faces is to take place over 20 Test Chambers, numbered 0 through 19. Solving these tests requires portals, which can directly link two different points in space. During the first two Test Chambers, GLaDOS is in control of placing portals, but you soon find a Portal Gun with which you can place your own portals.

Chell continues with the testing, successfully besting each challenge placed before her and avoids getting killed by the many hazards in the chambers. As she progresses, GLaDOS continues to speak to her over the intercom, but the messages from GLaDOS become increasingly cryptic, including multiple offerings of Cake and Grief Counseling as rewards. Some messages are so enigmatic that the sanity of GLaDOS is obviously in question.

Rat Man And The Companion Cube

In Chamber 16, Chell discovers a secret area behind the walls known as a Rat Den. It seems a former Aperture Science employee named Doug Rattman was forced to test in the chambers that Chell now faces. During his testing, it appears he went insane, and found a way out of the chambers and into the maintenance areas behind the walls. In the Rat Dens, Chell sees strange scribblings on the wall, most noticeably, a sentence is repeated many times that reads, "The cake is a lie".

In the next Chamber, Chell encounters a Companion Cube. It is identical in appearance to the regular Aperture Science Weighted Storage Cubes Chell has seen and used before, but with the remarkable exception of a pink heart painted on the side of it. Chell is required to carry the cube with her through the Test Chamber to the exit. Upon reaching the exit, she is forced to throw the Companion Cube into an incinerator, thus, as GLaDOS puts it, "euthanizing" it.

Chell continues making her way through the last chambers, and once she reaches the end of Test Chamber 19 via an automated platform, she is presented with, not an exit, but a fire pit. GLaDOS informs Chell that testing is over and that she will now go through a "victory candescence", and says goodbye to Chell.

The Escape And Final Showdown

Not wanting to die, Chell uses the portal gun to escape the fire pit and reaches the maintenance areas and internal rooms of the Enrichment Center. As she progresses through the bowels of the facility, she finds markings left by Rat Man that guide her along her way. Following these markings, Chell eventually makes her way to GLaDOS' chamber for a final confrontation.

GLaDOS drops a spherical object on the floor when Chell enters the room. Chell quickly incinerates the object only to be told the sphere was actually GLaDOS' Morality Core. Chell soon discovers that when GLaDOS was activated to run the Enrichment Center, she (GLaDOS) locked the center down and flooded it with a deadly neurotoxin thus killing the majority of the scientists within the facility. The few survivors of the attack hastily installed a morality core to stop GLaDOS from using the neurotoxins again.

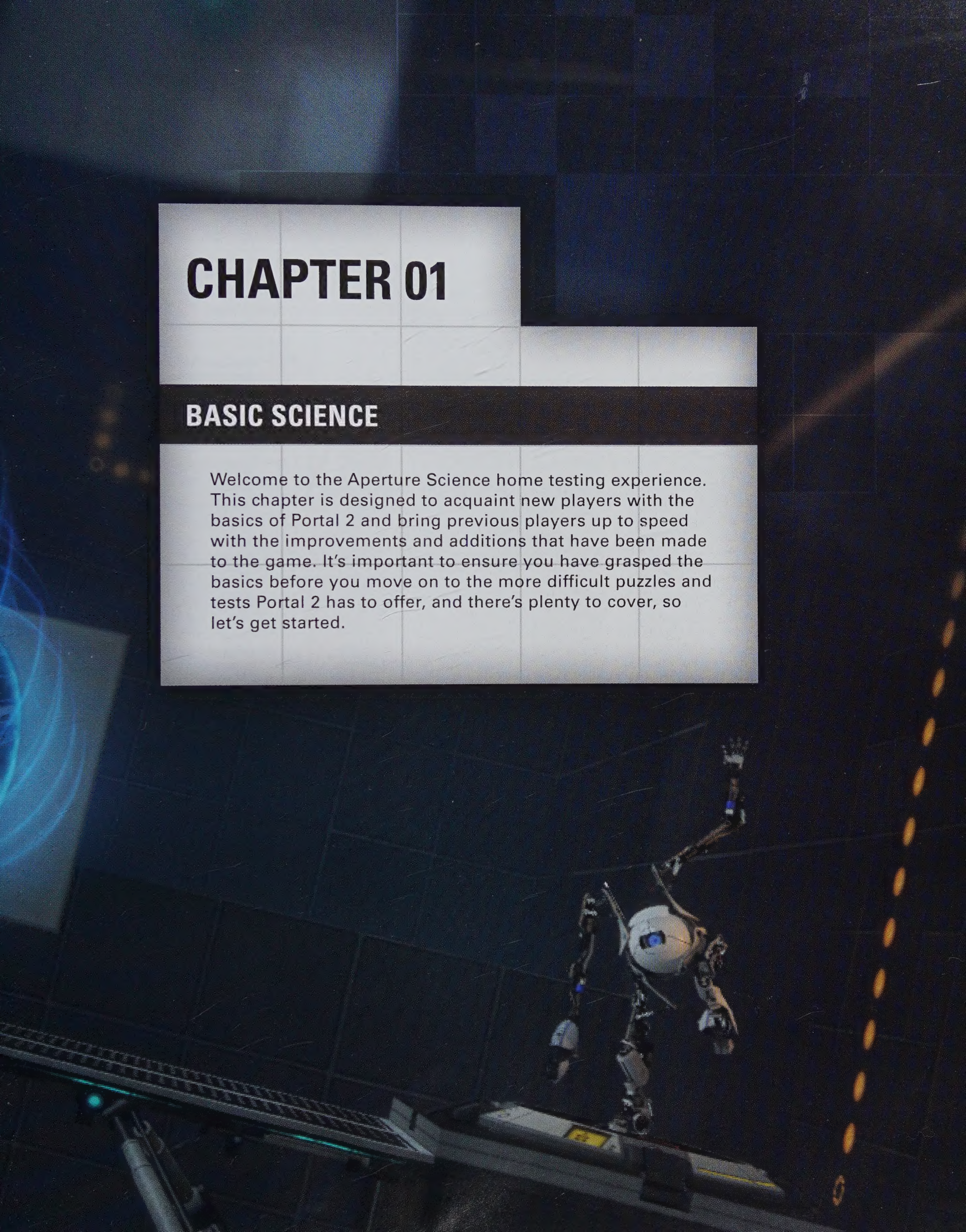
Once Chell destroys the Morality Core, GLaDOS quickly begins filling the chamber with neurotoxin and activates a rocket turret that begins firing rockets at Chell. Running out of time, Chell uses the portal gun to redirect the rockets so that they hit GLaDOS. Each successful strike knocks one of GLaDOS' cores off of her main structure. Chell quickly incinerates the cores, causing GLaDOS to malfunction and ultimately blow up.

During the explosion, Chell and the remains of GLaDOS are blasted through the ceiling to the outside parking lot of Aperture Science. Wounded, Chell lies motionless on the ground as a Party Escort robot drags her back into the Aperture Science building. Once inside, Rat Man finds her. Rat Man knows she is badly hurt, but doesn't know what to do to help her, so he puts her back into stasis.

Reawakening

Portal 2 opens with Chell being temporarily brought out of stasis to go through a mandatory physical and mental wellness exercise. Once she completes the exercise, she is put back into stasis.

Many years pass, and then Chell is once again awakened, but this time to a radically changed stasis room. Everything is in various stages of disrepair and decay, and a Personality Core named Wheatley enters the room and begins talking to Chell. Suddenly, a male voice comes over the intercom and declares that Chell should prepare for an emergency evacuation. Wheatley then disappears, via his rail, into the ceiling to help make preparations for the upcoming evacuation.



CHAPTER 01

BASIC SCIENCE

Welcome to the Aperture Science home testing experience. This chapter is designed to acquaint new players with the basics of Portal 2 and bring previous players up to speed with the improvements and additions that have been made to the game. It's important to ensure you have grasped the basics before you move on to the more difficult puzzles and tests Portal 2 has to offer, and there's plenty to cover, so let's get started.

GETTING STARTED

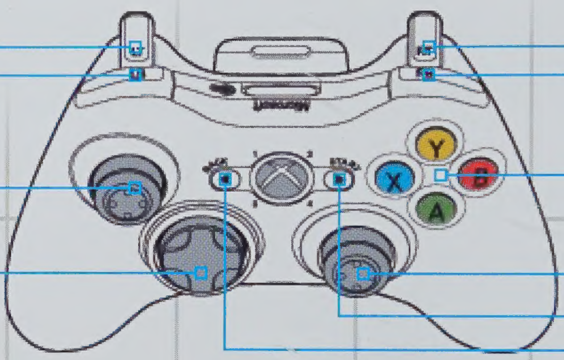
This section will take you through the process of starting a game, navigating menus, changing the controller layout and saving and loading games. In addition to the information in the tables and paragraphs, be on the lookout for tip boxes for additional information.

The Controller

First we'll take a look at the default control setup as displayed on the controller diagram here. The control options available are also outlined, with brief descriptions that answer any questions about exactly what each option does.

Default Controls

Function	Xbox 360
Fire Orange Portal	LT
Quick Ping (Co-op)	LB
Movement	Left Stick
N/A	Click Left Stick
Gesture (Co-op)	↑
Ping Menu (Co-op)	←
N/A	→
N/A	↓

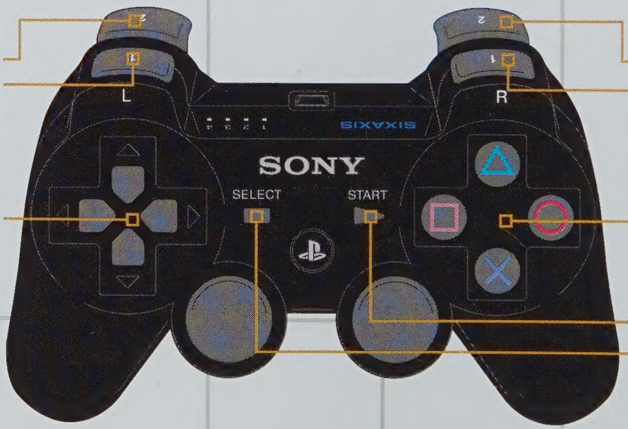


Default Controls

Function	Xbox 360
Fire Blue Portal	RT
Zoom	RB
Jump	A
Crouch	B
Partner View (Co-op)	Y
Use/Action	X
Look	Right Stick
N/A	Click Right Stick
N/A	START
Pause	BACK

Default Controls

Function	PS3
Quick Ping (Co-Op)	L2
Fire Orange portal	L1
N/A	L3
Gesture (Co-Op)	↑
N/A	↓
Ping Menu (Co-Op)	←
N/A	→
Movement	Left Stick



Default Controls

Function	PS3
Zoom	R2
Fire Blue portal	R1
N/A	R3
Jump	⊗
Crouch	○
Partner View (Co-Op)	△
Use/Action	□
Look	Right Stick
Pause	START
N/A	SELECT

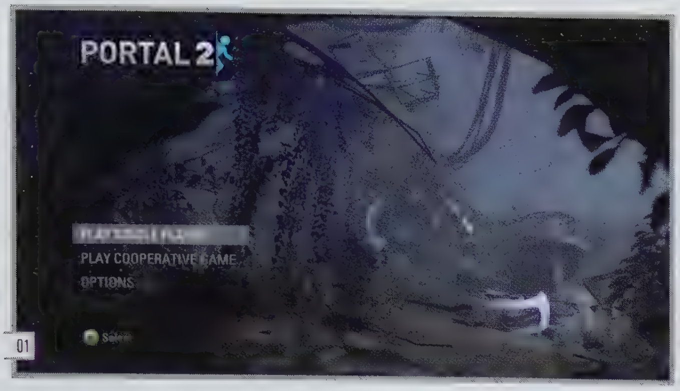
The Mouse & Keyboard

PC players will use a mouse and keyboard by default, though you can also plug in a PS3 or Xbox 360 controller if you want. Here we'll detail the default key configuration, but you can easily assign any function to whichever key you're most comfortable with to use the game's menus.

Mouse & Keyboard Controls

Function	Key
Move Forward	W
Move Left	A
Move Backwards	S
Move Right	D
Use/Activate	F
Look	Mouse Movement
Fire Blue Portal	Mouse Button 1
Fire Orange Portal	Mouse Button 2
Crouch	Ctrl.

Function	Key
Zoom In	Mouse Wheel Up
Zoom Out	Mouse Wheel Down
Jump	Space Bar
Ping Menu (Co-op)	F
Gesture (Co-op)	Q
Partner View (Co-op)	Tab
Quick Save	F6
Quick Load	F9



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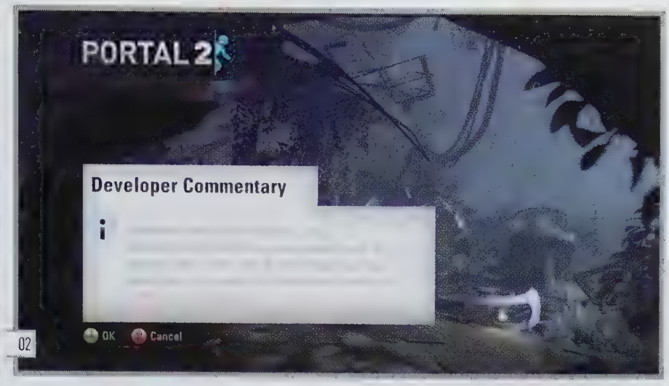

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Mouse & Keyboard benefits

The precision of a mouse can make firing portals very quickly much easier than it would be on a controller. You can adjust your mouse sensitivity to your liking, but even at low sensitivities it will be far more precise than using a controller's analog stick for looking and aiming. This can make fairly complex actions, such as firing a portal onto a small surface while in mid-jump much easier. Portal 2 is not designed to require many complex inputs in order to proceed, but if you're aiming for speed runs or looking to find short cuts then this increased degree of control can be very helpful.

Main Menu

The title screen presents you with three options: Play Single Player, Play Cooperative Game and Options. Select Play Single Player if you want to play alone [→☐ 01]. Select Play Cooperative game if you would like to play with a partner. Select Options if you wish to adjust the settings.

Single Player

Continue Game | Selecting this option will load the last saved game and allow you to continue playing where you left off.

New Game | Choose this option to begin playing from the beginning. If you have completed the game, you can choose to start from a specific chapter.

Load Game | Choosing this option will allow you to load a specific game save.

Developer Commentary | After you have finished playing by beating the game once, you can choose this option to activate developer commentary nodes [→☐ 02]. Developer commentary will be covered in the Enrichment Completion Area chapter.

Cooperative Game

Play Online | Select this to play the co-op game over Xbox Live, PSN, or Steam. This will be covered further in the chapter on co-op play.

Play Split Screen | Select this option to play the co-op game using splitscreen, on one console with two controllers.

System Link | This option will allow you to play a cooperative game using two machines connected through System Link.

Options

Brightness | Moving the slider to the left increases the brightness, and to the right decreases it. The blue squares mark the default. This should be set to your personal preference according to the display you're using.

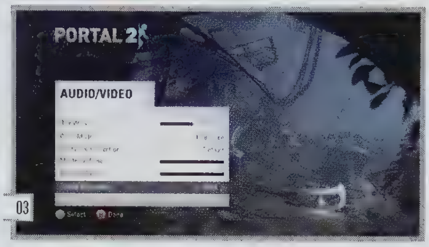
Color Mode | There are two options Television and Computer monitor. Television will display colors safe for televisions, while computer monitor will display a wider range of colors if you are using VGA. Select the option that matches your display type.

Split Screen Direction | This option affects the division of Split Screen when playing a co-op game. Horizontal will stack both players' views on top of each other, and vertical will place them side-by-side.

Video Settings (PC Only) | The PC version of Portal 2 has additional video options that allow you to customize the game to suit your PC configuration. These include changing the aspect ratio, resolution and display mode. Keeping the resolution as high as possible will give you the biggest image quality benefits, so it's best to set it to your monitor's highest available mode. You would only need to lower it if the game's frame rate isn't smooth enough for the game to be enjoyable.

Advanced Video (PC Only) | The Advanced Video menu features another host of options to tweak your visual settings. These will generally be preset to the best settings for your PC configuration, but some, such as Vertical Sync, are down to personal preference, rather than being dictated by your computer's performance level.

Master Volume | This changes the overall volume of the game. Moving the slider left will make the sound quieter, while moving it to the right will make it louder.



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Music Volume | This option adjusts only the music volume. Moving the slider left will make the sound quieter, while moving it to the right will make it louder.

Closed Captioning | You may turn on subtitles or closed captions. Setting it to none will display no text on the screen, while the subtitles setting displays only spoken words and the full captions setting will display full closed captions. [→☐ 03]

Button Layout | You can choose between four different button layouts. Selecting each button layout will display it for you and show the changes made to the placement of various functions. Button Configuration Three is the one that is closest to the Portal 1's control layout.

Stick Layout | There are two options for stick layout, normal and southpaw. In the normal configuration, you move with the left stick and look with the right stick. Southpaw reverses this, so you look with the left stick and aim with the right stick.

Vertical Sensitivity | This setting affects how quickly you are able to look up and down. Higher settings result in zippier movements, but result in a decrease in precision. Select whichever setting feels comfortable for you.

Horizontal Sensitivity | This setting affects how quickly you are able to look side to side. Higher settings result in zippier movements, but result in a decrease in precision. Select whichever setting feels comfortable for you.

Look Type | There are two options, normal or inverted. Using normal look, pressing up on your look stick causes you to look up, and down to look down. With inverted, pressing up causes you to look down, and pressing down causes you to look up.

Reset to Defaults | If you wish to bring the settings back to their default states, select this option.

INTRODUCTION TO TESTING

Please take a moment to review the following procedural information if you are new to the game. This will help you to get familiar with the conditions under which you'll be testing.

Controlling Yourself

Controlling yourself while completing the puzzles is a vital skill if you are to succeed and forward the cause of science. Here we'll go through some basic elements of control to ensure that each one is fully explained and understood.

Moving

Use your movement stick or your movement keys to travel about the test chambers. You can move across flat or slightly inclined surfaces, and will climb small ledges such as stairs automatically. You move at the same speed regardless of which direction you are traveling, which is 175 inches/sec.

Air Control

While in the air you can use the movement stick or keys to adjust your trajectory slightly. This can be useful to avoid falling back into portals, or avoiding a surface you would normally land on. [→☐ 01]

Crouching

To crouch, press and hold the crouch button or key. Crouching will reduce your height by half, which can allow you to fit into smaller spaces. Crouching is also used to stop yourself from bouncing on Repulsion gel, which will be explained in the Testing Elements section of this chapter.

Jumping

Some tests may require you to jump. To jump, press the jump button or key. The maximum jump height is slightly less than you are tall, meaning that jumping can be used to get up on to ledges just shorter than you are. The duration for which you hold the jump button does not affect jump height; it is a fixed value of 45 inches.

Using Buttons or Switches

To complete the testing, you are often required to interact with objects or activate buttons, switches and the occasional lever. To pick up a small object, walk near it, look at it, and press the Use button or key. To drop the object, press the Use key again. To flip switches or press buttons, walk near it, look at it, and press the Use key or button. [→☐ 02]

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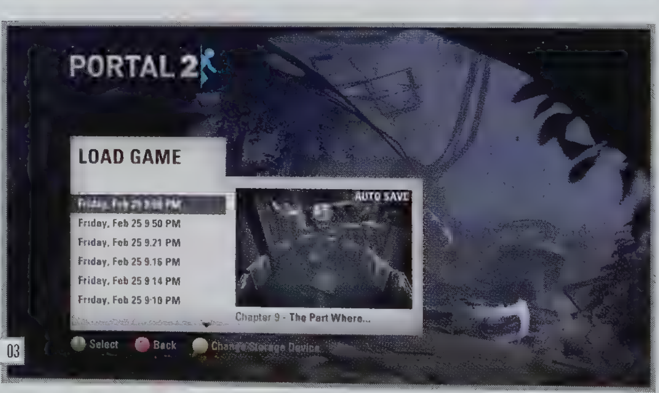

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Saving and Loading

Periodically, your progress is automatically saved as you play by using auto-saves. Portal 2 will keep at most 3 different auto-saves, and each of these is denoted with the words 'Auto-Save' over the graphic.

You may also save your game at any time, by pressing the pause button and selecting 'Save Game' from the menu. You will be taken to a new menu, where you can select 'New Saved Game Slot' to make a new game save. Previous saves are listed by their dates, and by selecting them you can delete them, or overwrite them with your current save [→☐ 03]. You cannot overwrite an auto-save. On console versions of the game, you can have up to 8 game saves, plus auto-saves.

While playing, you can load the last saved game, whether that was an auto-save or a manual save, by pausing the game and selecting 'Load Last Save' from the menu.

Health

You have a base value of 100 health. When taking damage, the screen will flash red to indicate you are losing health. When your health reaches zero, your character will die. You do not take damage from falls or other impacts. You can, however, be crushed by spike plates, which will result in instant death. The following can damage you:

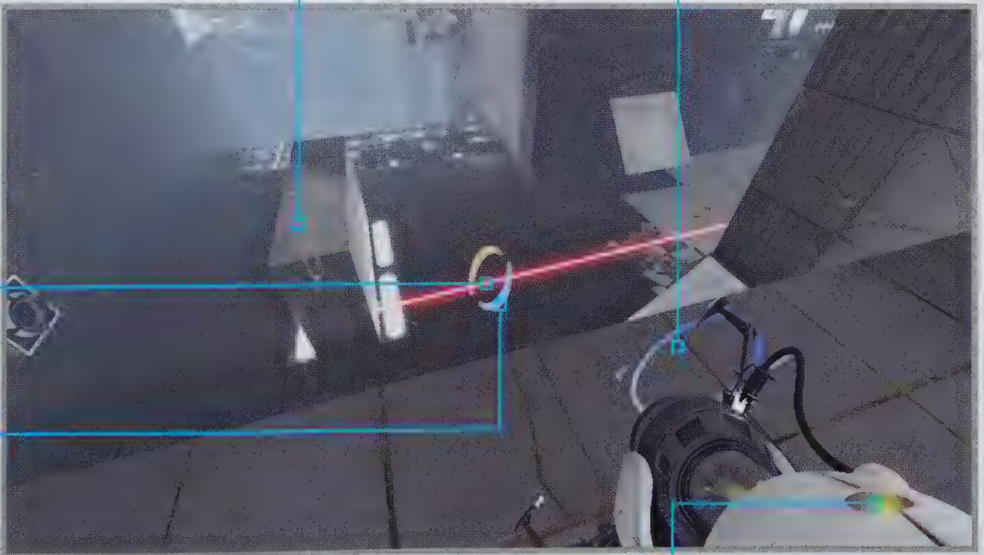
Hazard	Damage
Turret Bullet	9
Thermal Discouragement Beam	2.5
Bomb	11-23
Spikes	2.5-10 (or instant kill)
Contaminated Water	25 per tick (or instant kill)

After you stop taking damage, your health begins to recharge. There is no visual indicator revealing health or recharge status, so in general the best advice is to avoid being damaged by anything.

HUD

While the Head Up Display is generally quite simple, there are a few useful details to know:

Orange / Blue Portal Locations | When not directly in your line of sight, portals placed on the map will be visible in a semi transparent state. This state will deactivate once the portal comes back into your line of sight. This indicator state is denoted by tick marks around the portal oval, indicating the portal is not currently in your line of sight.



Targeting Reticule | The center of your reticule indicates where your portal will be placed if you fire one, or which object will be affected by the Use command. You'll most often use this when you need to place portals very precisely or over longer distances.

Orange and Blue Portal Indicators | These denote the status of the player's placed portals. If this indicator is in outline, it means that portal is currently not placed on any surface. If it is solid, this means there is a portal currently placed somewhere. Portals will be discussed later in this section. The left indicator tells you the status of your orange portal, while the right indicator tells you the status of the blue portal.

Last Portal Indicator | The light at the top of the Aperture Science Handheld Portal Device changes color to indicate which portal was last successfully placed on a surface. In Portal 1, this indicator changed whenever you fired a portal, but in Portal 2, this only changes when a portal is successfully placed on a surface.

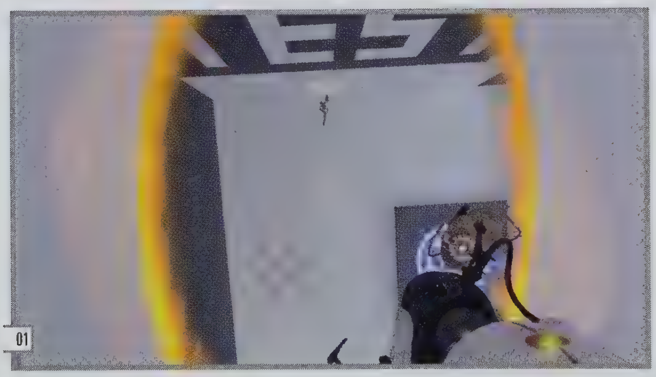
Those of you familiar with Portal 1 will find that the small circle denoting which portal you last placed and the changing indicators to let you know if you could place a portal on a surface have been removed.

PORTALS

Understanding how to place and use portals is absolutely vital if you wish to complete the game. Portals may be created from portal generators, or be placed freely using the Aperture Science Handheld Portal Device.

Aperture Science Handheld Portal Device

The Aperture Science Handheld Portal Device is capable of firing conjoining portals onto surfaces that are receptive to the process. The portals it fires are oval in shape, and can connect two points in space. Objects passing through one portal will emerge out of the other, and vice versa.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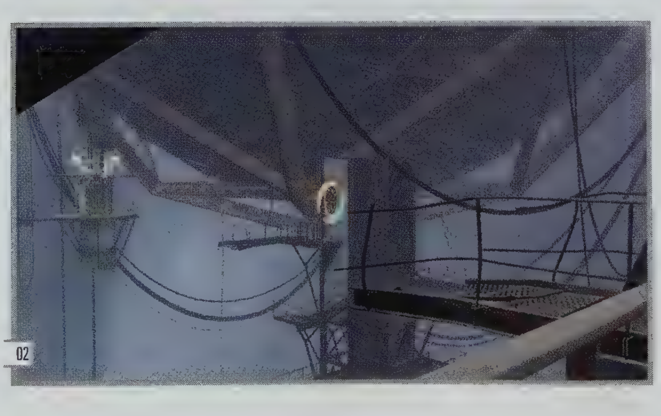
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Proper Operation of the Device

The Aperture Science Handheld Portal Device is capable of creating two linked portals, which can be placed on any flat portalable surface. Portals may not be created on certain surfaces, railings or grates, or on non-flat surfaces. To place a blue portal, press the primary fire button. To place an orange portal, press the secondary fire button. When both portals have been placed, they are now linked together, and can be traveled through. Entering the blue portal will cause you to exit from the orange portal, and vice versa; portals are not one way. [→☐ 01]

Placing a portal of the same color over a current portal will overwrite it. This can be used to slightly adjust your portal placement. Portals can be placed through metal grating. Portals cannot be shot through other portals. By pressing the zoom button, you can zoom your view by 2x. While zoomed, your sensitivity is decreased and you can still fire portals. This is useful for hitting small spaces off in the distance. [→☐ 02]

In addition to placing portals, the portal gun also contains a weak zero-point energy field manipulator which can be used to interact with in-game objects. With it, you have the ability to levitate small objects such as Weighted Storage Cubes.

To pick up an object, press the Use button while close enough. The object will hover in front of the portal gun, and can be carried around and even through portals. To drop the object, press the Use key again. By rapidly changing your view while dropping an object, it can be thrown to a small degree. This is useful if you want your object to land in a different orientation.

PORTAL PROPERTIES

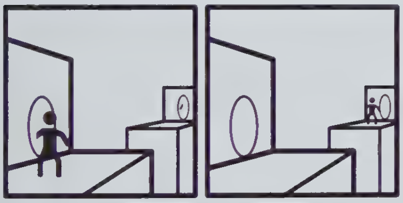
Portals can be placed on any portalable surface in any orientation – on the floor, ceiling, walls, or slanted surfaces. Portals link spaces together, and any object or substance small enough can pass between them uninhibited. This includes people, weighted storage cubes, small objects, Mobility gels, Thermal Discouragement Beams, Hard Light Bridges, and Excursion Funnels.

Portals do not affect the speed of objects passing through them, but will change the direction of motion according to the orientation of the exit portal. As an example of this, an object falling into a portal on the floor will have its speed converted to horizontal motion if it exits a wall portal. An object entering a portal on the wall and exiting a portal on the floor will similarly have its horizontal motion converted into vertical motion.

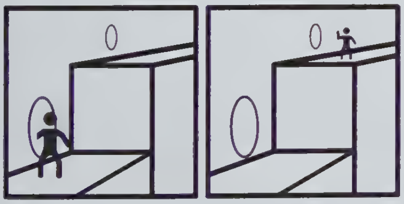
Portals and Mobility

While walking or running is a good way to get from place to place, many of the tests require you to use portals to move. The most basic method is to place a portal in an inaccessible area, then place the other portal nearby. You can enter the portal and emerge on the other side.

Using Portals for Movement



You can use a portal to reach the top of tall ledges.



You can also use portals to cross large gaps easily.

Advanced Mobility

Many of the tests will require more advanced maneuvers to navigate the test chambers, and this is where we'll explain the most important ones.

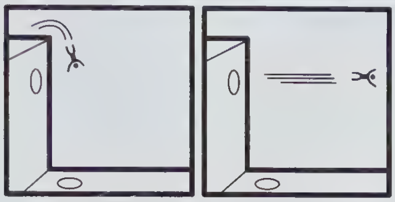
Flings

Because you can use portals to redirect motion, they are useful for flinging yourself up onto ledges or other inaccessible areas. For this example, let's say there are no portalable surfaces on a ledge you need to reach, but there are some on the surrounding walls and at the bottom of a pit.

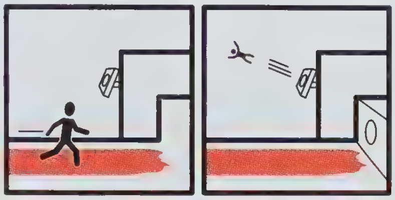
If you place portals at the bottom of the pit and on the far wall, jumping into the pit will cause you to accumulate speed, due to gravity. Exiting the portal on the wall will cause the downward speed to be converted into horizontal speed, and you will 'fling' yourself up onto the ledge.

Often, slanted surfaces are useful for placing portals on in order to fling to areas of the test chamber. While gravity is the most common method for generating speed, anything that gets you moving quickly can be used to set up a fling. For instance, you can use Propulsion gel.

USING FLINGS



Jumping into a portal from a great height will send you flying out of the exit portal.

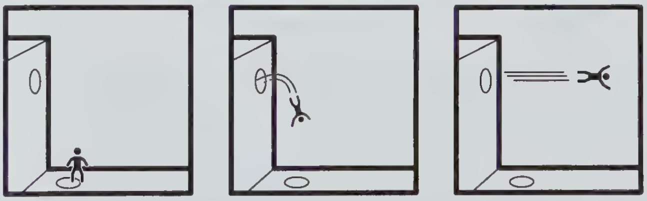


If you run into a portal fast at a high enough speed you'll be flung a great distance when you exit.

Double Fling

Sometimes, you just don't have a pit when you need one. In such a case, you can still fling by using portals to generate speed. In the following example, there seems to be no way to generate any speed in order to fling yourself up onto the ledge. If you place a portal on the floor and high on the wall, however, you can fall back through your floor portal to gain enough speed for a fling.

USING DOUBLE FLINGS



Simply stepping into a portal on the floor is enough for a fling, providing you can fall back into it from a portal above.

Because you pass through the portals twice, you are doing a 'double fling'. Remember, you can also place portals while in the air! Using this technique, you can set up more advanced double flings.

Infinite Fling

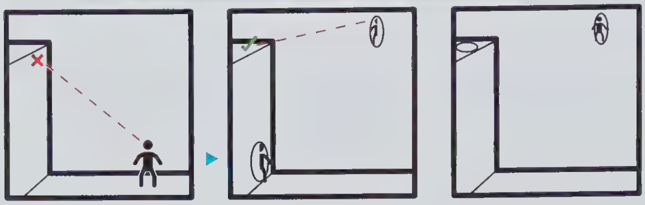
Sometimes, space and portal surfaces may be limited, and generating momentum for a fling may seem all but impossible. In these situations, you may be able to create an Infinite Fling.

The concept is simple: perpetually fall between two portals to build up speed. For example, place a portal on the ceiling and on the floor directly below. You will build up speed constantly as you continuously fall through these portals. Now just move the portal on the ceiling to a new location, and watch as all your speed is miraculously transferred as you exit your new portal with a blast of momentum.

Portal Peeking

While you cannot fire a portal through another portal, peeking through a portal so that you are just through it can let you fire another portal from it [→☐ 01]. This allows you to fire portals from places you otherwise couldn't. There are several shortcuts that can be accomplished by peeking, many of which are detailed as advanced tips in the walkthrough section of this guide.

USING PEEKING



Peeking affords you the ability to place portals where you otherwise couldn't. This example shows an area where you may want to place a portal, but can't see over there to fire directly at it.

Peeking out of the orange portal can let you place a blue portal on the far ledge. Normally, you would need to raise a platform to get up, but peeking and shooting a blue portal can allow you to bypass the need for this.

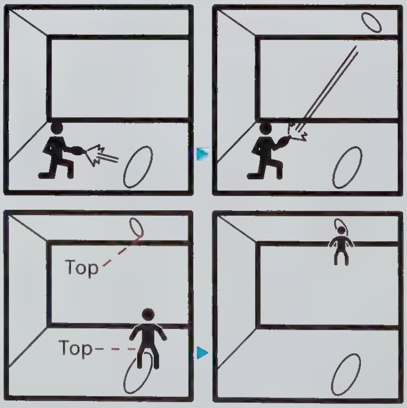
Portal Ledging

Portal ledging was very easy to do in Portal, but it has been made much harder in Portal 2. If you are in the right spot, you can stand on the space between portals even if there is no ground there. For instance, if you have two portals both placed high on a wall where there's no solid ground, you can still stand between the portals. In combinat peeking, you can use this to quickly get from place to place and reach spots you otherwise couldn't.

When you place a portal, if you are in between the two of them, you will be pushed out. You can counteract this by walking backward into the portals as the new portal is forming. [→☐ 02/03]

Portal Orientation

Because portals bend the laws of space, disorientation, confusion, and motion sickness are common at first before test subjects become accustomed. For the most part, the details of portal orientation don't affect the majority of the puzzles you will be facing, but players wishing to engage in advanced maneuvers may benefit from knowing the details.



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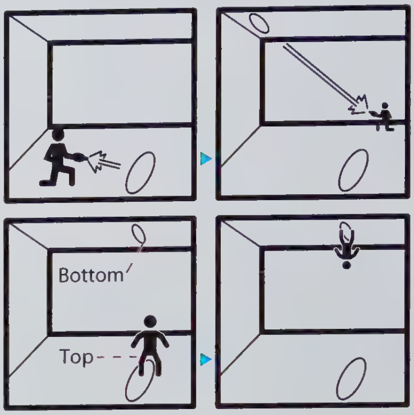
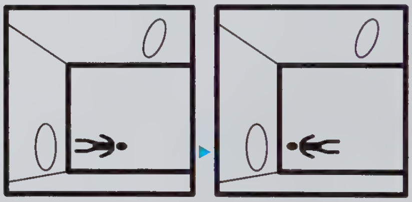
Portals are linked in such a way that the top of one portal is linked to the top of the other. When placing a portal on the walls and floor, the top of the portal is whichever end of the oval is pointing toward the top of your screen. When placing them on the ceiling, the top is the end facing the bottom of your screen. Objects passing through the top of one portal will come out the top of the other portal.



As a general rule, the easiest way to keep your bearings is to always enter a portal looking straight at it, with the top pointing up [→☐ 04/05]. This method is recommended for the majority of players.

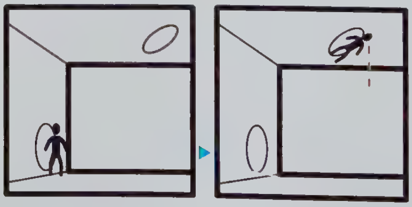
As you pass through portals, your view will be reoriented according to the direction of the exit portal. Passing between portals placed on walls poses no problems, since you can only place portals on walls in one orientation.

On floors and ceilings, you can place portals in any orientation you wish, which can present some problems. In the example below, dropping into the orange portal on the floor facing the top of the portal, will cause you to come out facing the top of the blue portal, which turns you around. If you want to come facing the other way, either enter the orange portal from the other side, or reorient the orange portal by 180 degrees.

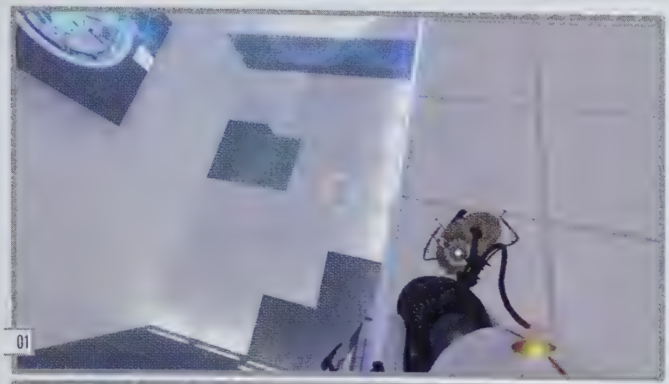


Passing between a portal on a wall and either the floor or ceiling is the most complicated of all, since your view has to be reoriented. To visualize, it helps to imagine that your head is always pointing toward the top of the screen, your feet toward the bottom, and you are facing the direction you are looking.

As you look up, imagine that you tilt back. When you are looking straight up, you will be on your back, with your feet pointed at the orange portal on the wall. You can only look up 90 degrees. Any more, and you would lean back so far you would be 'upside down'. Looking straight down, you are on your stomach, with your head pointed at the orange portal. Likewise, you can only look 90 degrees downward.



What happens if you are to enter the orange portal looking right at it? You'll walk forward into the orange portal, with your head at the top of the portal. You will exit the blue portal on your stomach, with your head at the top of the portal. Your view is actually reoriented. As you walked into the portal you were looking straight ahead, and as you exit you are looking straight down.



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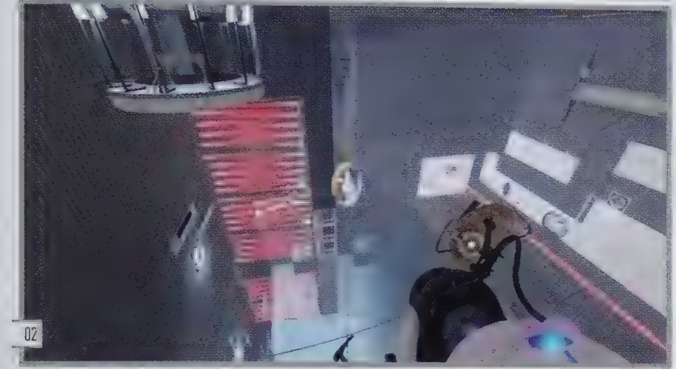

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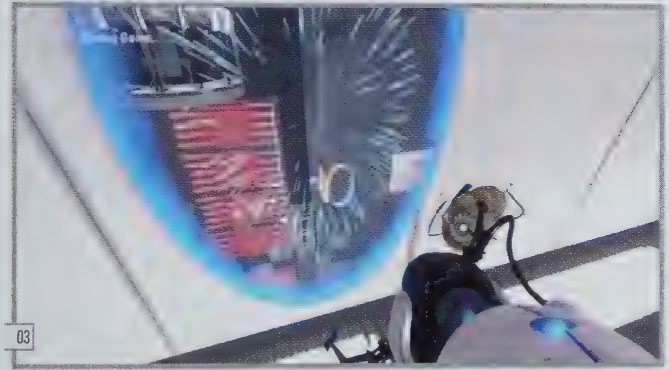

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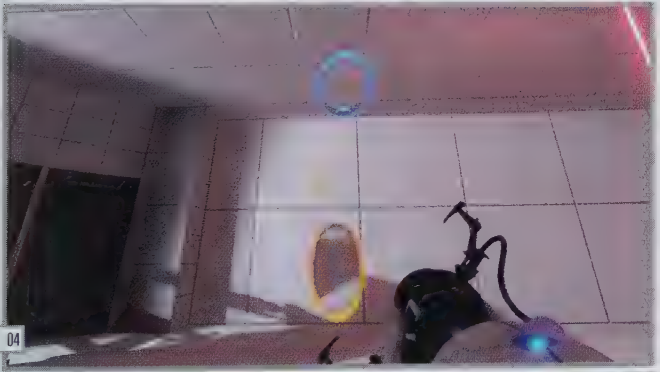

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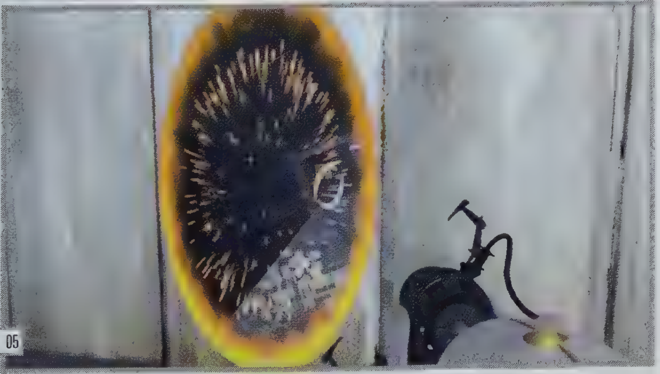

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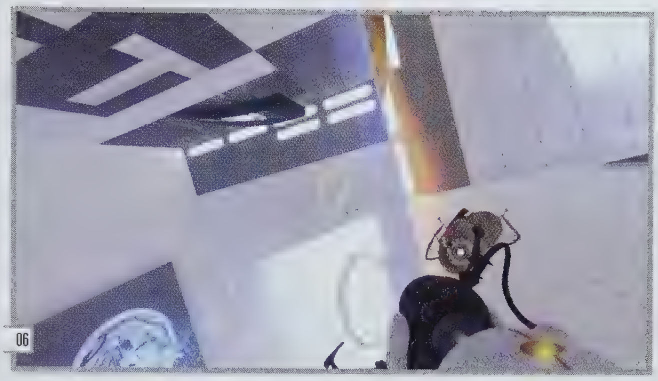

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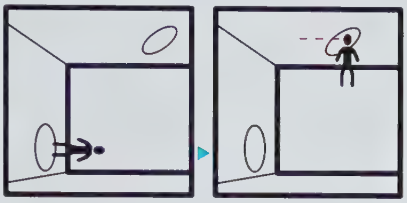
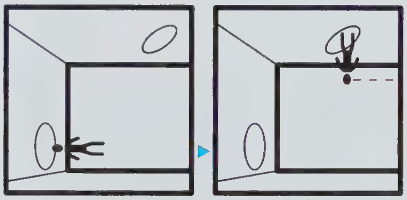
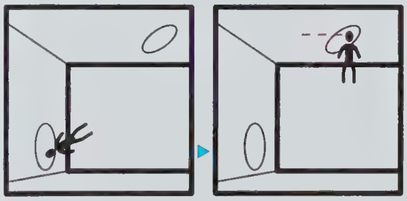


Walking forward into the orange portal while looking straight up, you can see that your feet enter the portal before your head, while looking toward the top end. You'll emerge from the blue portal standing straight up, looking toward the orange portal. Your view is reoriented from looking straight up, to looking straight ahead.



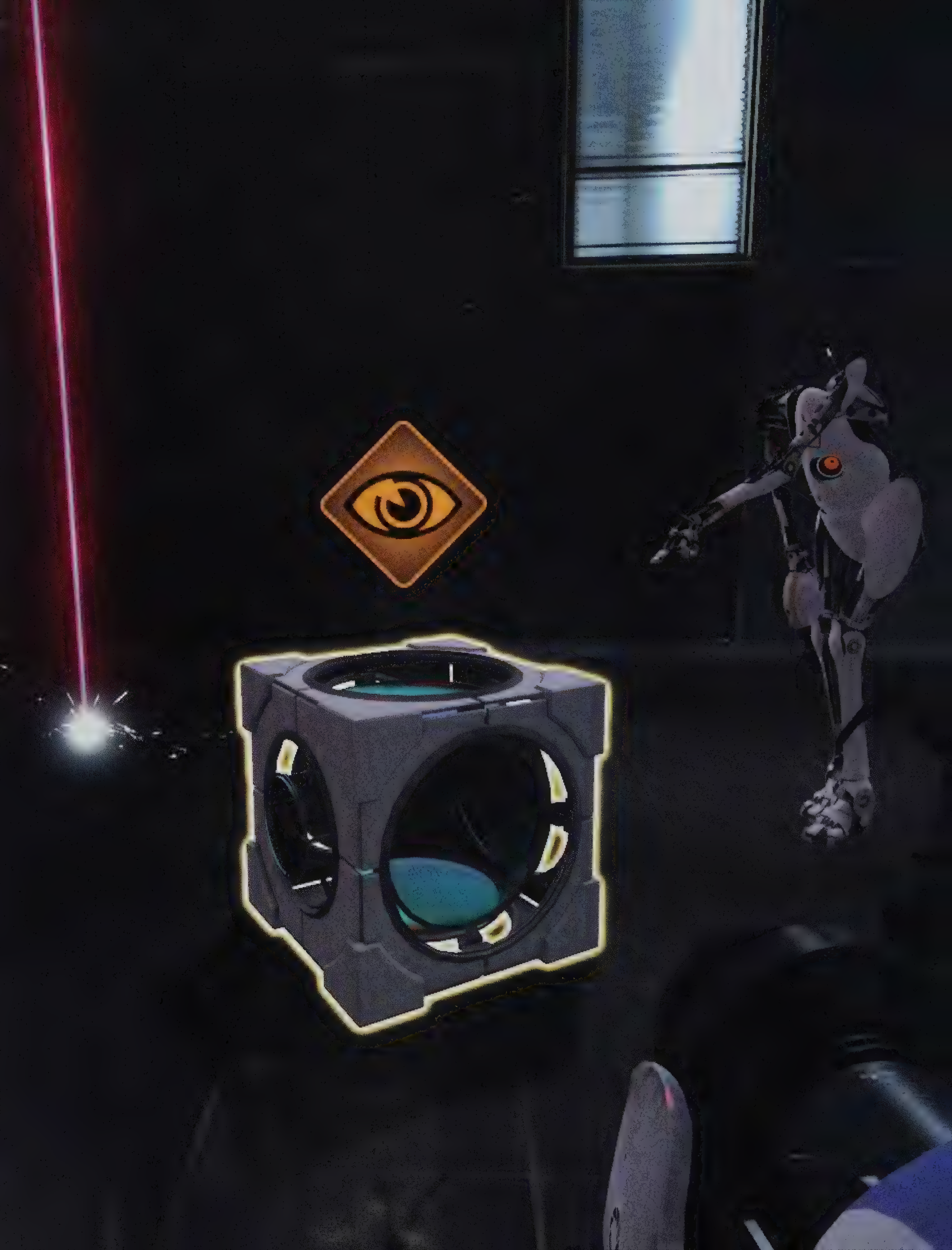
Walking into the orange portal while looking down, causes your head to enter before your feet. In this case, you will emerge from the blue portal upside down, looking away from the orange portal.



If at any time your feet are above your head, you will be spun around your roll axis to right you. In the above example, you will spin straight up, so you will end up landing on your feet looking toward the orange portal.

Any time passing through portals will cause a change on your roll axis, for example, stepping sideways into the orange portal, you will similarly be spun until you are standing straight up. If you were to step sideways into the orange portal facing the far wall, you'll exit the blue portal facing the far wall on your side. You will be rolled straight up, and will land standing looking at the far wall. When entering portals sideways like this, you will always exit looking straight ahead and level. This means that the degree to which you are looking up or down will affect the direction you exit facing. While disorienting, stepping through portals sideways is the only way to precisely control which direction you end up facing as you exit [→ 06].

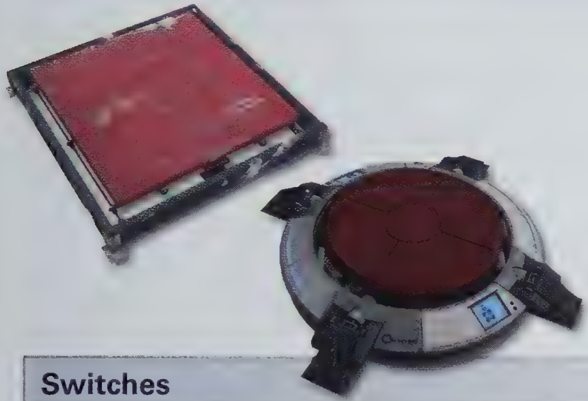
In Portal, rolling upright was a somewhat slow process, sometimes taking up to a second. In Portal 2, you are spun much more quickly; the roll is almost instant. This should cause less disorientation.



TESTING ELEMENTS

Portal 2 is full of new gameplay elements that players must familiarize themselves with to complete the various puzzles. Here we'll take a look at each of these test elements in turn, and detail the many ways in which they can be used.

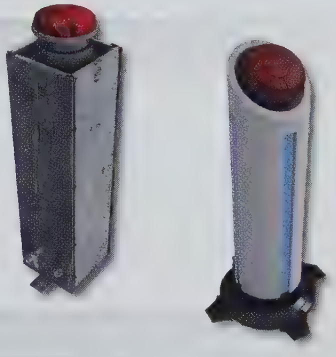
1500 Megawatt Heavy Duty Super-colliding Super Button



The 1500 Megawatt Heavy Duty Super-colliding Super Button (or just 'button' to shorten it a little) functions as a large switch, activating whatever the button happens to be linked to. To determine what a button is linked to, follow the line of lights from the button.

The button can be activated by stepping on it, or by placing a weighted storage cube on top of the button. The button doesn't like to be depressed, so as soon as the weight is lifted the button will rise and deactivate. This means that if the button is linked to a door, for example, the door will only remain open while the button is depressed.

Switches



Switches work like buttons in that they can be linked to things in the chambers, but are generally meant to be hit once rather than stay depressed. Switches are most often linked to item dispensers and gel tubes. You can follow the line of lights to see what a switch will activate. Switches are activated by standing in front of them, and pressing the Use button. You can press switches while moving, or while in the air.

Weighted Storage Cube

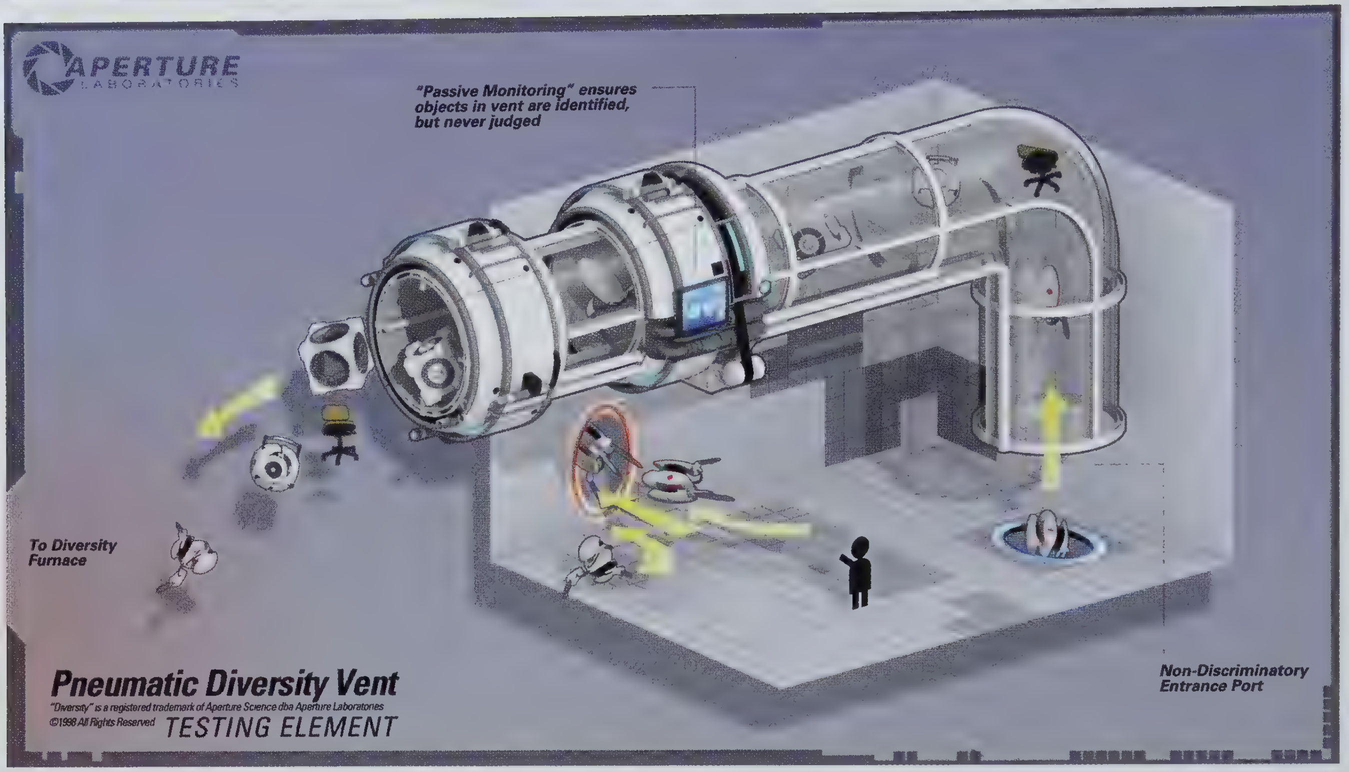
While nothing is actually stored inside the cubes, Weighted Storage Cubes have a variety of uses in testing, including weighing down buttons, blocking Thermal Discouragement Beams, and knocking over turrets. Cubes can be picked up, sent through portals, covered in gel, and flung on Aerial Faith Plates. Weighted Storage Cubes will always fizzle when they pass through Emancipation Grills.

Franken-Turrets

Half turret, half cube, these little boxes behave like normal weighted storage cubes, except that when placed upright, they have a tendency to walk around. This can cause problems if you want to keep them in one spot.

When placed on buttons, the legs will retract and the Franken-Turrets will not move. To keep them from moving while on the ground, give them a toss as you drop them to topple them on to their back or side. If the legs cannot reach the ground, they will remain stationary. This is very useful for a few test chambers, and will be covered in the walkthrough section of this guide.

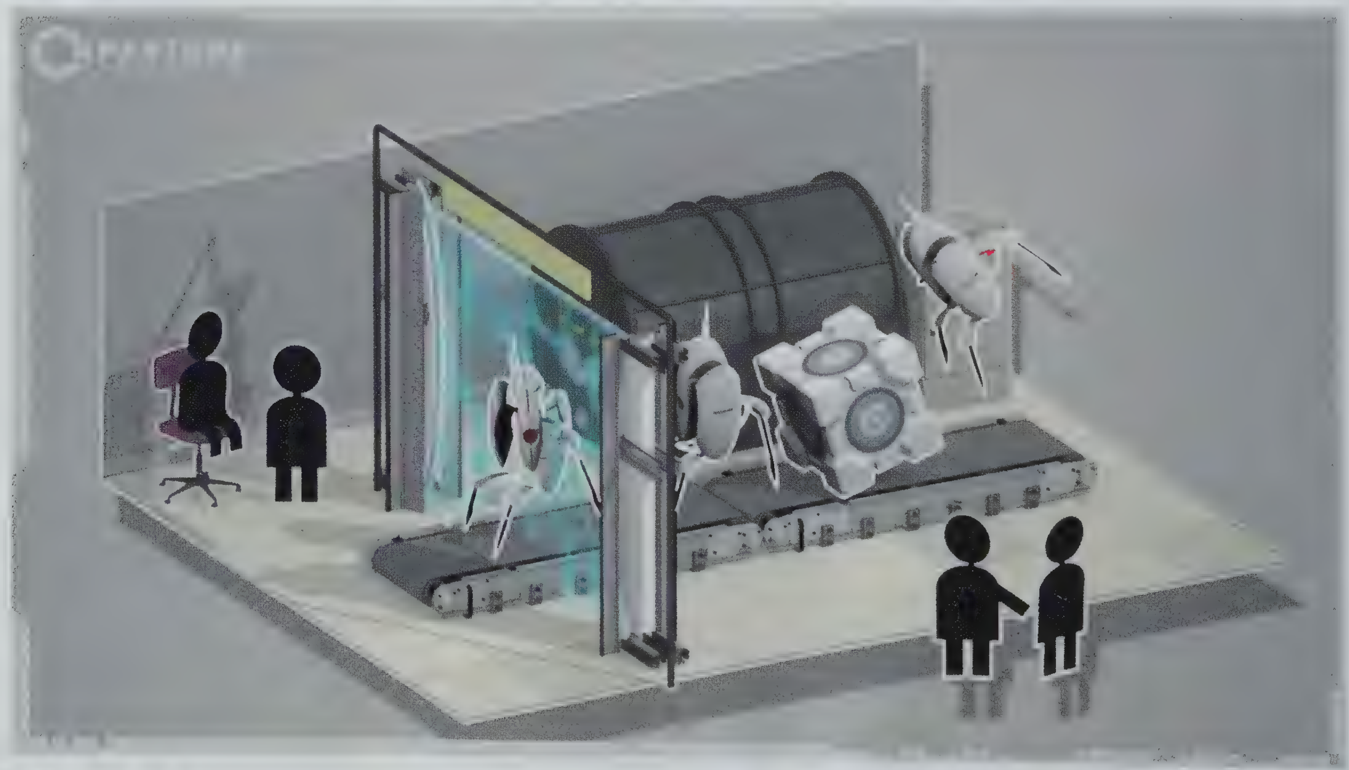
Pneumatic Diversity Vents


APERTURE
LABORATORIES
"Passive Monitoring" ensures objects in vent are identified, but never judged
To Diversity Furnace
Non-Discriminatory Entrance Port
Pneumatic Diversity Vent
"Diversity" is a registered trademark of Aperture Science dba Aperture Laboratories
©1998 All Rights Reserved
TESTING ELEMENT

Aperture Science is equipped with a tube-based transport system to quickly move items and gels from place to place. The system of Pneumatic Diversity Vents are linked to dispensers, which are in turn often linked to buttons or switches. Applying pressure to a switch or button can be used to reactivate a dispenser. [→□ 01]

Gels are among the many things carried by the Pneumatic Diversity Vents. The supply of gels at Aperture is nearly unlimited, so you can drop all the gel you need. When dispensing testing objects such as Weighted Storage Cubes, dropping a fresh object will fizzle an existing object in the chamber.

Material Emancipation Grill



The Aperture Science Emancipation Grill was initially designed to keep test subjects from smuggling items outside of the test chambers, but has since become used as a part of the testing itself. Emancipation Grills will destroy any testing element object that contacts it. The emancipated object will turn black and immediately begin to disintegrate. Since the Emancipation Grill is only designed to destroy objects, players may freely pass through it without being harmed.

When you through an Emancipation Grill, the portal gun will shake slightly and any portals currently placed will disappear. This removes any portals you have placed in the chamber. Portals also may not be fired through Emancipation Grills. Attempting to do so will cause the portal to fizzle while crossing the grill, and the grill will slightly light up.

Emancipation Grills are used as puzzle elements and as a means to reset the player's state between puzzles and chambers. They are nearly always placed at the end of chambers as a means to have each chamber be a fresh start [→☐ 02]. When they appear within a chamber, Emancipation Grills are used as puzzle elements, often as means to reduce the number of possible solutions to puzzles. Typically, this will mean finding a way around or over the grill so as to keep your portals intact.

Laser Grills

Laser Grills can be thought of as the opposite of Emancipation Grills; they let objects and portals pass through, but do not let test subjects pass. Touching a laser grill will instantly vaporize you.

Mobility Gels

While most of the liquids you encounter will kill you, several gels have been developed to aid in testing. There are three types of gels at Aperture Science: Repulsion Gel, Propulsion Gel, and Conversion Gel. Each individual type of gel will be described in detail below, but for now their properties as a whole will be discussed.

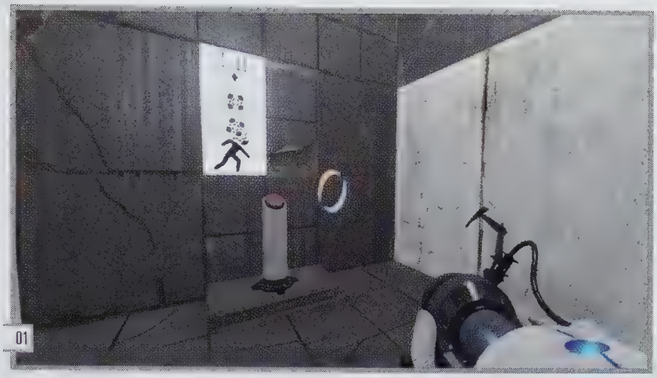
All gels flow from a gel dispensary or from a broken tube. Gels will coat any flat surface or object that they splash on. Gels cannot coat metal gratings or other non-flat surfaces. Once a surface has been coated in gel, it can only be removed by coating the surface in a different gel, or by washing it with water. If the surface is portalable, you may still place portals on surfaces coated in gels. Gels behave just like other objects when passing through portals, and you can use portals to redirect and fling gels wherever you need them to go [→☐ 03].

Water

If you wish to wash off a gel from an object or surface, applying water will rinse it clean. Water behaves in exactly the same way as gels, and can be sent through portals in the same way.

Repulsion Gel

When coating a surface, Repulsion Gel will cause players to bounce off the surface [→☐ 04]. Standing on the gel and jumping will cause you to be bounced approximately 2.5 times your normal jump height. Falling onto the gel from a height will cause you to bounce up slightly higher than the drop height. When placed on walls, the gel will bounce you horizontally. To avoid bouncing on the gel, hold crouch when contacting it.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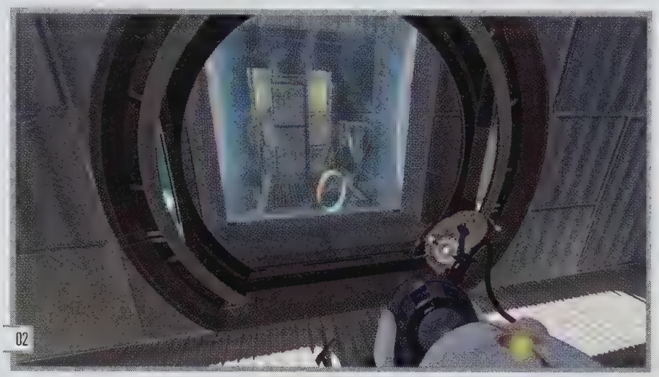
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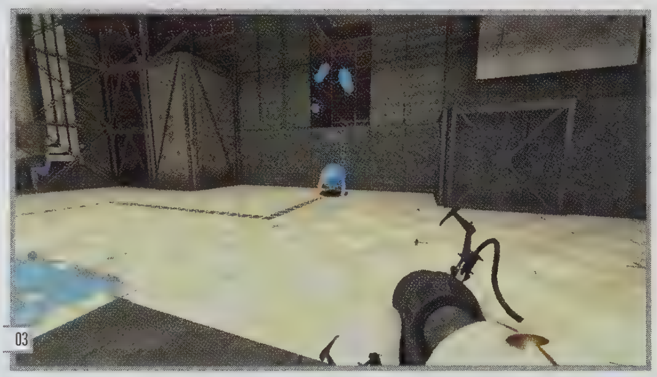
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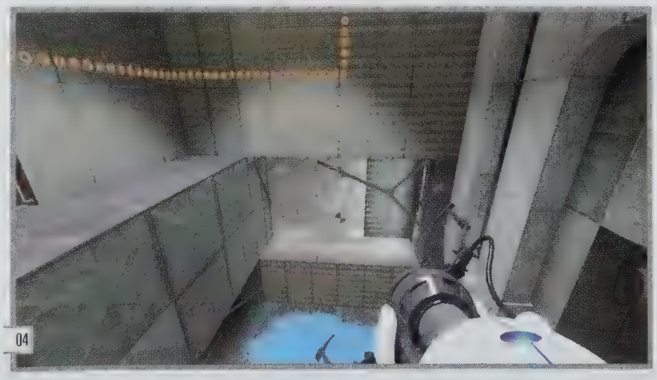
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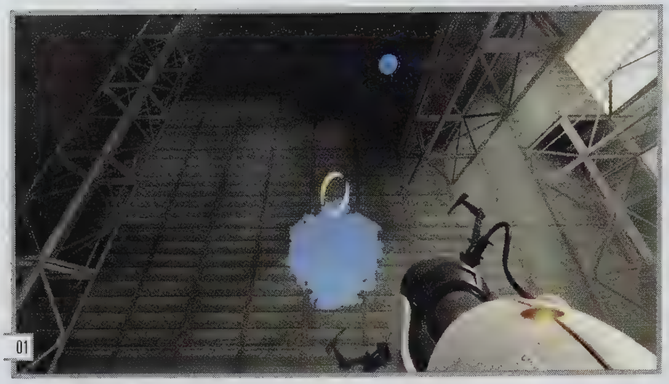
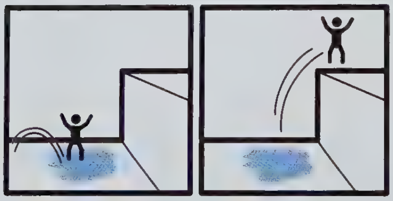


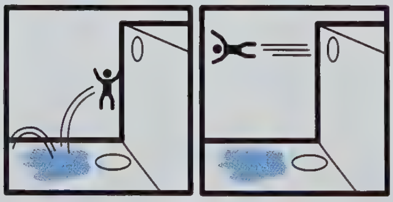
When bouncing off gel, the angle at which you hit the gel is the angle at which you bounce off [→☐ 01]. For instance hitting the gel at a 45 degree angle, will bounce you off at a 45 degree angle. While bouncing, you have a small degree of air control, which you can use to influence where you land by moving yourself in the desired direction.

To bounce off Repulsion gel, you need to either contact the surface with some speed, or you must walk over it and jump. The only exception to this is if you are running along Propulsion gel, in which case you will automatically bounce if you run over Repulsion gel.

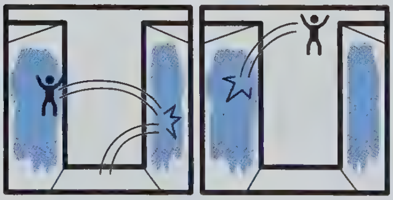
USING REPULSION GEL



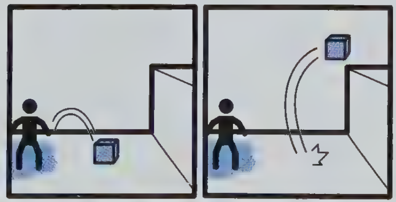
Repulsion Gel can be used for reaching ledges too high to jump to. Just jump onto the gel and then jump again as you land on it.



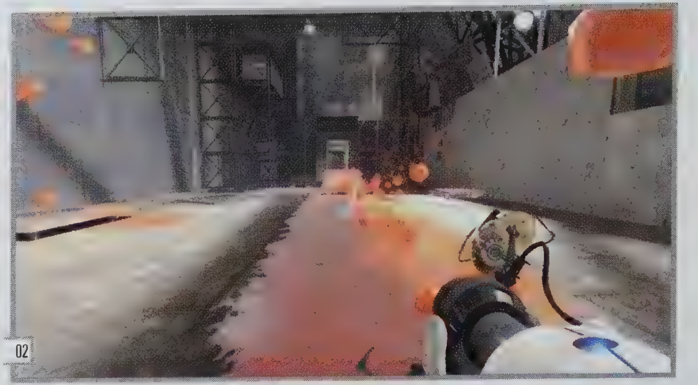
Repulsion Gel can be used to begin or extend a fling by bouncing off of it. It's simply a matter of bouncing and then falling.



Repulsion Gel can be used to climb walls. You'll need to have Repulsion Gel on more than one wall to attempt this.



You can coat objects in Repulsion gel, in which case they will begin bouncing uncontrollably until they are destroyed, or washed off with water. This is useful for bouncing cubes, or destroying turrets.



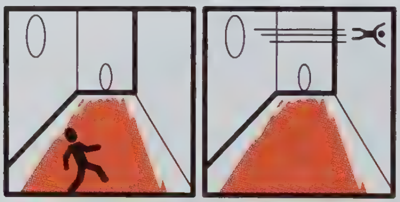
Propulsion Gel

Propulsion Gel is an orange gel that greatly accelerates your speed and reduces friction when you run across a surface coated in it [→☐ 02]. Normal run speed is 175 inches/sec, but while running along Propulsion Gel your speed can reach as high as 800 inches/sec.

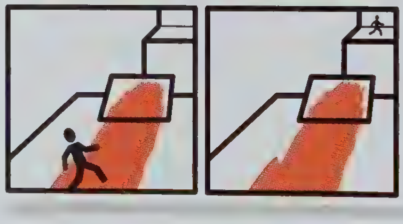
While running, you accelerate at a rate of 500 inches/sec^2 on flat ground, and 1000 inches/sec^2 on ramps. This means that on flat ground it takes just over a second to reach full speed, while on a ramp it takes half that. This means that in practice you'll be able to run up ramps without losing speed. Typically, you will want to lay Propulsion Gel in long runways so as to have a long section to gain speed on.

When coating objects, Propulsion Gel causes them to be slippery and slide around. When placed on even a slightly slanted surface, the object will begin to slide down it.

USING PROPULSION GEL



Propulsion Gel can be used primarily to gain speed for flings, by placing a portal at the end of your runway.



You can also use Propulsion Gel to get across large gaps if there's a ramp to launch yourself from.

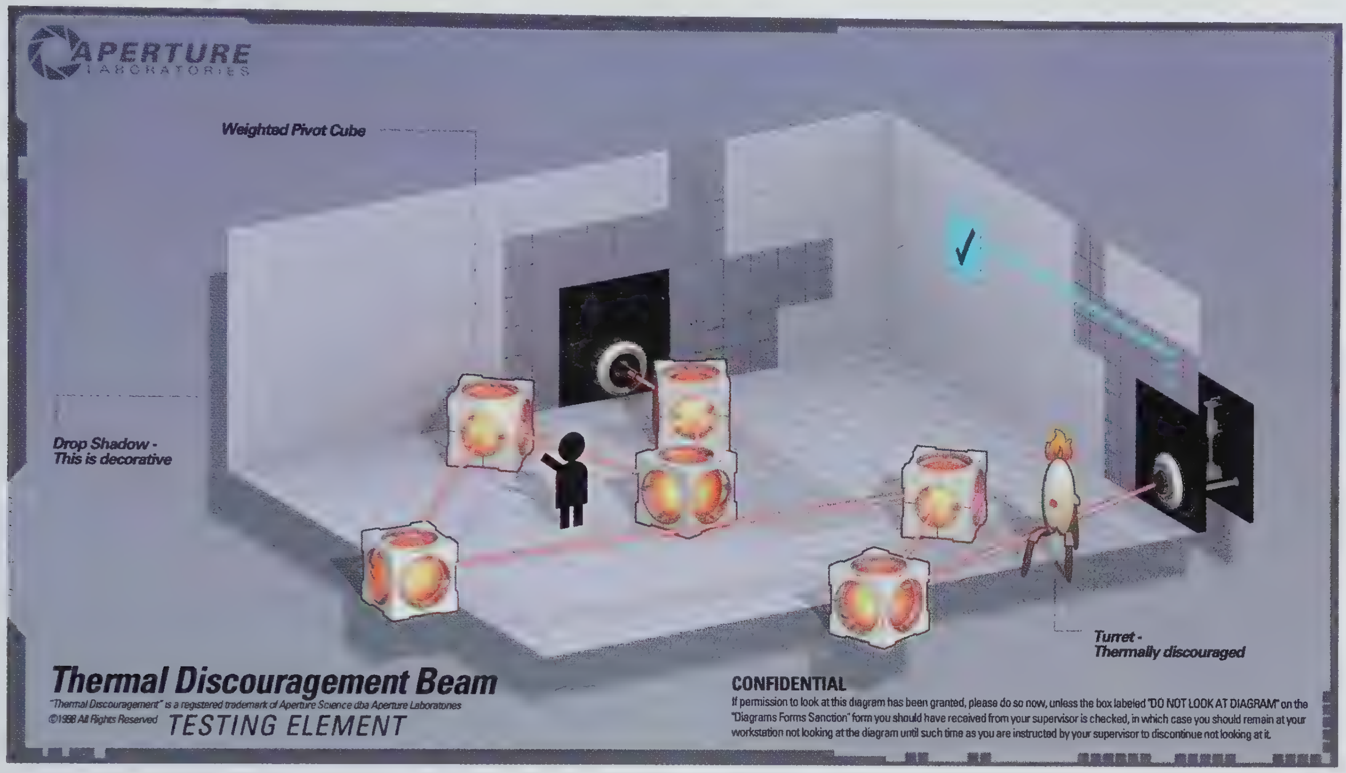
Conversion Gel

Conversion Gel is a white gel, made from crushed up moon rocks.

When coating a surface, the Conversion Gel enables that surface to accept portals. Conversion Gel can be applied to any surface that can be coated in gel, so it allows you to create portals on surfaces that you would otherwise be unable to place portals on. This opens up your possibilities for movement around an area vastly.

Thermal Discouragement Beams

Thermal Discouragement Beams are low-energy red lasers that are somewhat non-hazardous to the touch. They are emitted from generators placed in many test chambers [→☐ 03]. Just walking into a beam won't do much damage to you and will just push away, hence the discouragement moniker. Prolonged contact with the beam will result in death. Thermal Discouragement Beams can also destroy turrets or monitors.


APERTURE
LABORATORIES
Weighted Pivot Cube
Drop Shadow -
This is decorative
Turret -
Thermally discouraged
Thermal Discouragement Beam
"Thermal Discouragement" is a registered trademark of Aperture Science dba Aperture Laboratories
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TESTING ELEMENT
CONFIDENTIAL

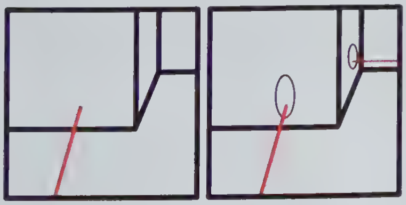
If permission to look at this diagram has been granted, please do so now, unless the box labeled "DO NOT LOOK AT DIAGRAM" on the "Diagrams Forms Sanction" form you should have received from your supervisor is checked, in which case you should remain at your workstation not looking at the diagram until such time as you are instructed by your supervisor to discontinue not looking at it.

Receptacles

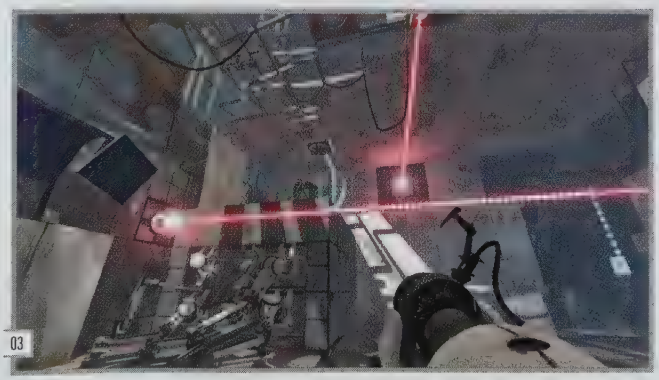
Thermal Discouragement Beam Receptacles are typically placed in test chambers to accompany a generator. Receptacles act much the same as buttons or switches but will only react to beam passing through them. They are active when in contact with any Thermal Discouragement Beam and inactive when the beam is not present. Typically, in order to activate the receptacle, players must redirect the Thermal Discouragement Beam from the generator into the receptacle. Much like with buttons, following the line of lights will tell you what the receptacle will activate.

Redirecting Thermal Discouragement Beams

Thermal Discouragement Beams can be redirected in two ways: with portals or with Discouragement Redirection Cubes. Redirection of Thermal Discouragement Beams with portals is fairly straightforward. The beam will pass in a straight line into one portal and out the other. To have the beam exit a portal at an angle, you'll need to use a Thermal Redirection Cube.



You can use portals to redirect Thermal Discouragement Beams in straight lines.

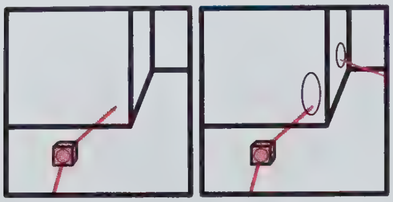


03

Discouragement Redirection Cubes

The other option for redirecting beams is the Discouragement Redirection Cube. These cubes resemble Weighted Storage Cubes, but are slightly smaller and have lenses on the sides. One of the cube's sides has a double lens, and any beam striking the cube will be redirected straight out of this side. When picking up a Discouragement Redirection Cube, the cube will flip until the double lens is pointing away from you, as a safety measure.

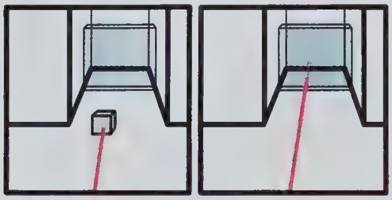
Placing the redirection cube into a beam will cause the beam to be redirected out of the front of the cube. When using this to direct a beam into one of your portals, it will then exit the portal at the same angle it entered at [→☐ 01].



Direct the beam into a portal at an angle, and it will emerge from the exit portal at the same angle.

Blocking Thermal Discouragement Beams

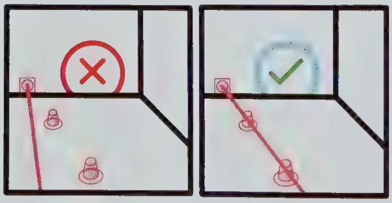
Sometimes you will need to block a Thermal Discouragement Beam in order to trigger an action, such as opening a door. Beams cannot pass through walls, or solid objects like Storage Cubes or security cameras. Beams can pass through glass walls, however, and you'll sometimes need to use this to your advantage.



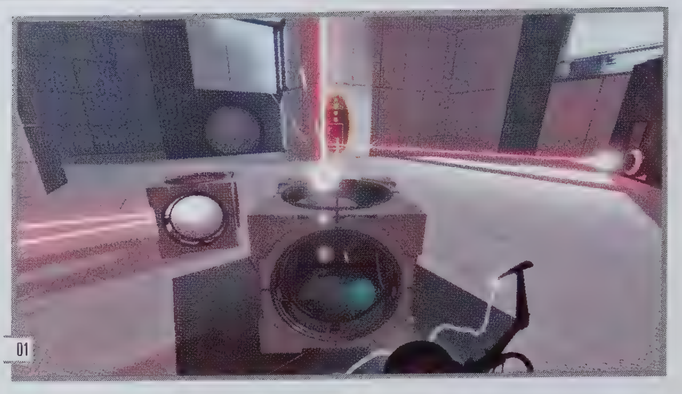
Storage Cubes can stop Thermal Discouragement Beams in their tracks. Glass walls, however, will not.

Relays

Relays are small glass tubes that protrude from the ground. Relays are similar to receptacles in that they can trigger things like doors to open. However unlike receptacles, a Thermal Discouragement Beam can pass through a Relay and keep going [→☐ 02]. In practice, this usually means that many Relays are linked to the same door, in which case the Thermal Discouragement Beam must pass through them all in order to open the door.



Just aiming the beam into its receptacle won't be enough to open to door. Passing it through the Relays, however, will get the job done.



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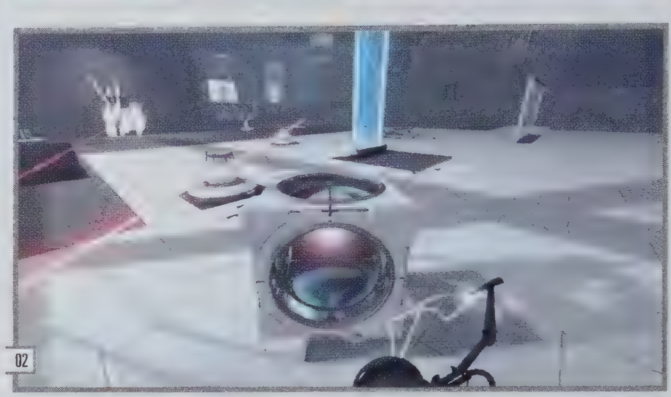

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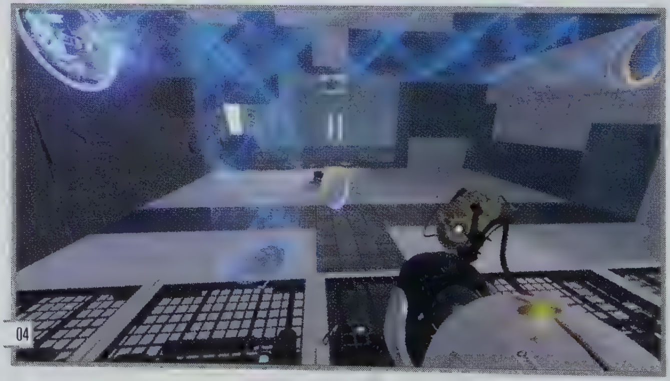
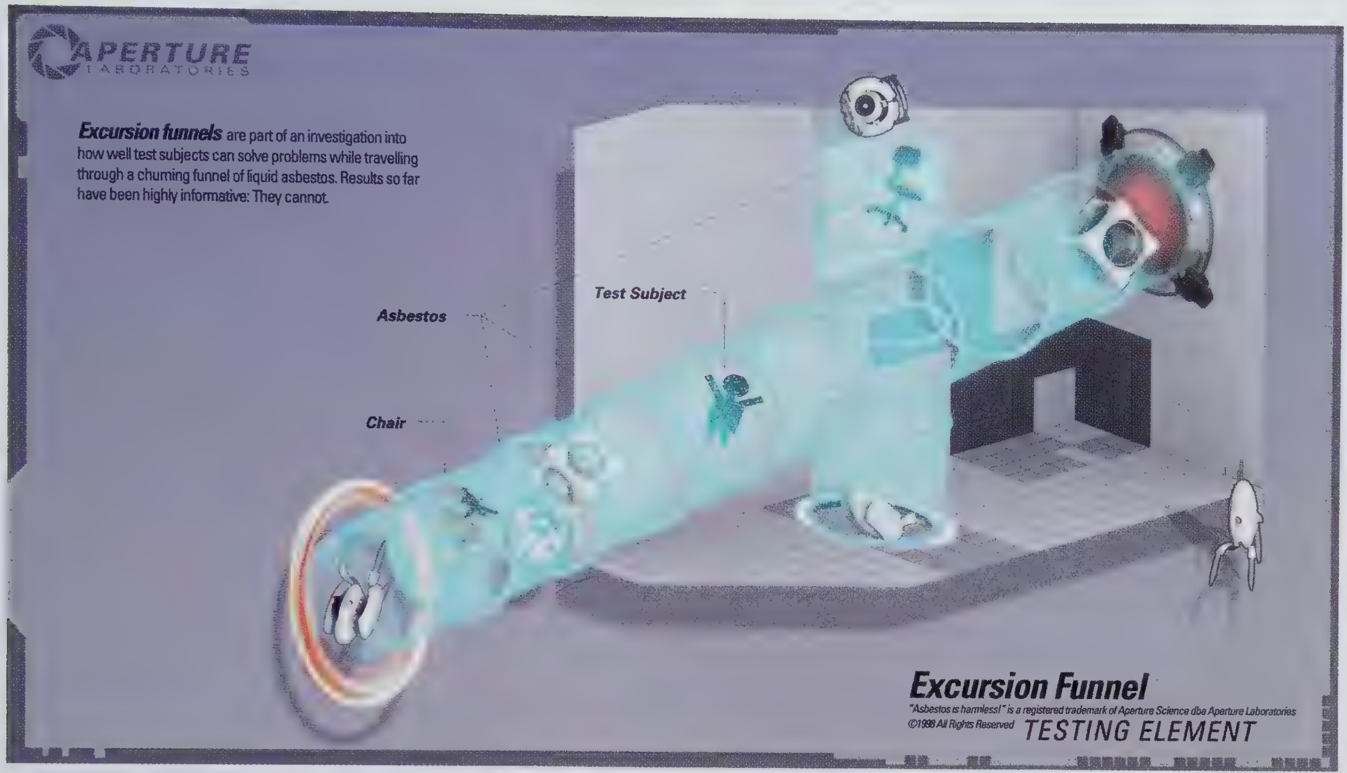


04

Excursion Funnels



Excursion funnels are part of an investigation into how well test subjects can solve problems while travelling through a churning funnel of liquid asbestos. Results so far have been highly informative: They cannot.

Excursion Funnel

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Made from liquid asbestos and contained by powerful magnetic fields, Excursion Funnels have the ability to transport any persons, liquid or objects within the funnel in a gravity-defying fashion.

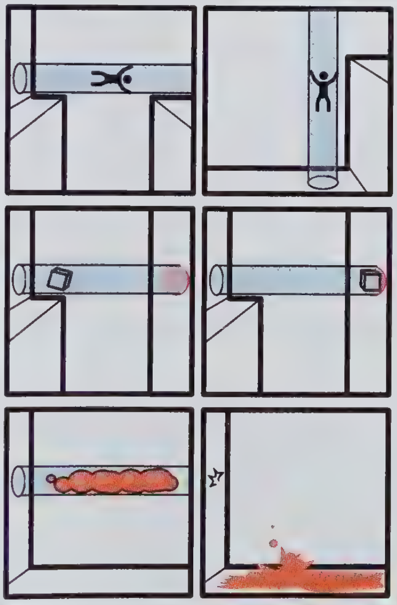
Excursion Funnels are emitted from generators, which will usually need to be activated before they emit the funnel. By default, they appear blue and flow away from the generator. Any person, liquid or object that contacts the funnel will be pulled into the middle of the funnel and begin to flow in the funnel's direction [→☐ 03]. Contact with any part of the funnel will cause the funnel to pull you in, so touching the side is all you need to do to get inside an excursion funnel.

Riding in Excursion Funnels

Inside the funnel, things always flow in the direction of the funnel and are unaffected by gravity. In this way you can use Excursion Funnels to travel vertically, or horizontally. Excursion Funnels extend in the direction of the flow until blocked by a wall. While riding in an Excursion Funnel, you are unable to move forward or backward with respect to the flow of the funnel. You can move perpendicular to the flow however, and use this to step out of the funnel at any time.

In certain situations, buttons can reverse the polarity of Excursion Funnels, causing them to turn orange and flow in the opposite direction toward the generator. This is great for using to funnel to go back to where it brought you from, or for bringing something towards the funnel generator.

USING EXCURSION FUNNELS



Excursion Funnels can be used as transport across pits, or up cliffs.

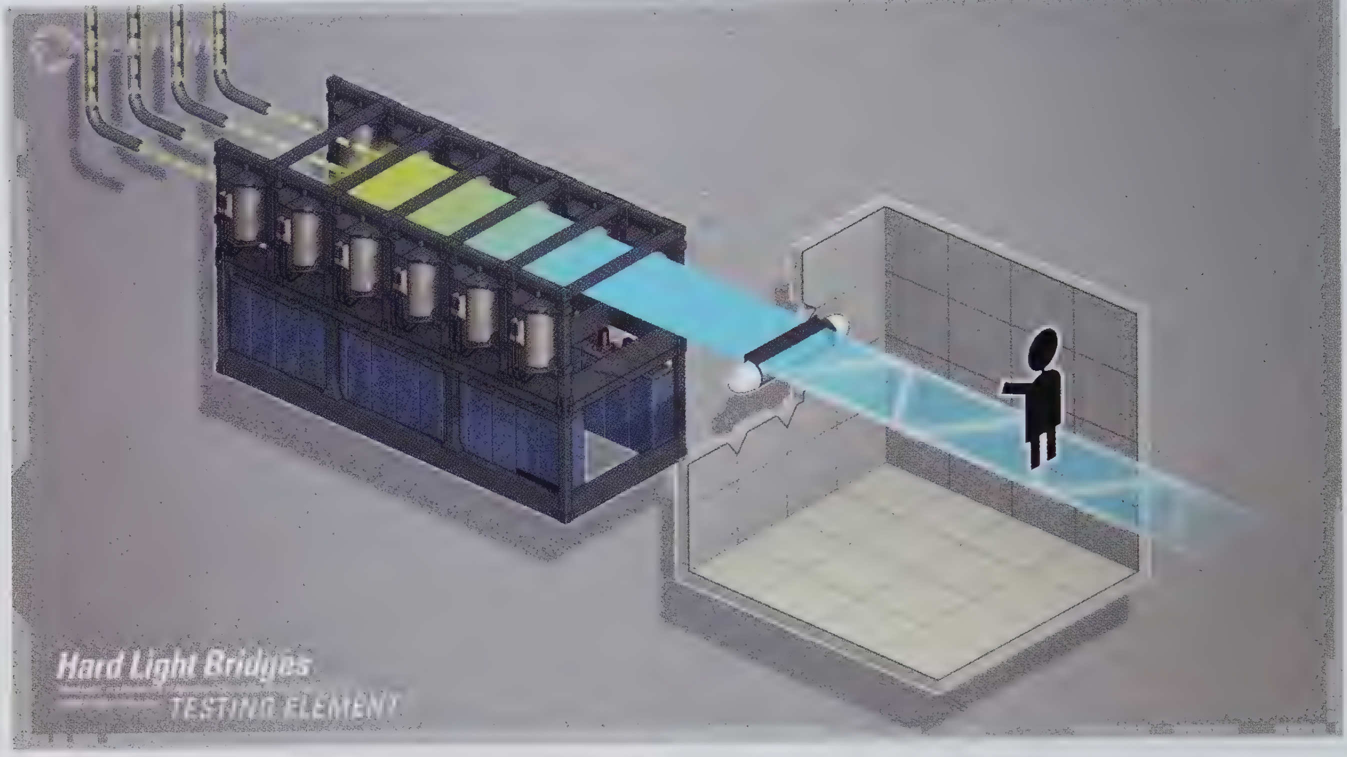
Excursion Funnels can be used to transport objects, or to have objects activate buttons on the wall or ceiling.

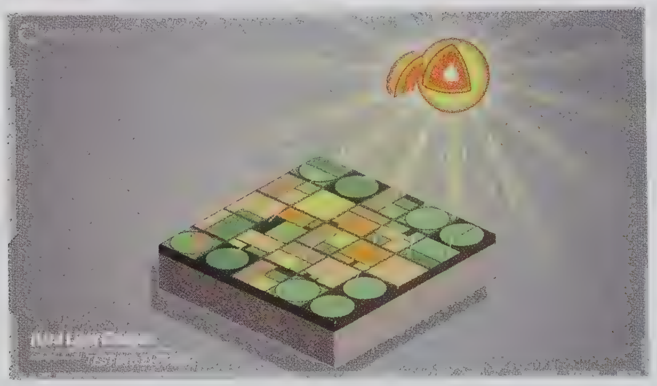
Excursion Funnels can be used to transport gels. Removing the excursion funnel with a supply of gel in it can be a good way to lay runways of gel on surfaces.

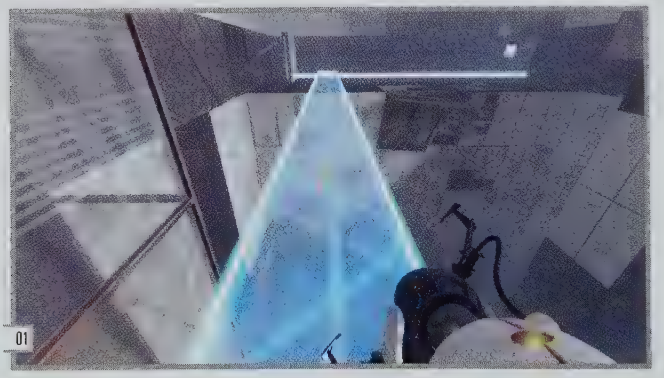
Extending Excursion Funnels

Excursion Funnels can also be redirected using portals. Placing a portal at the end of an Excursion Funnel will cause the funnel to continue out of the other portal [→☐ 04]. Things in the Excursion Funnel can pass through the portal and will continue along the path of the Excursion Funnel. Removing one of the portals will cause the Excursion Funnel to disappear, which can be used to drop objects onto the surface below them as they move through the funnel.

Hard Light Bridges



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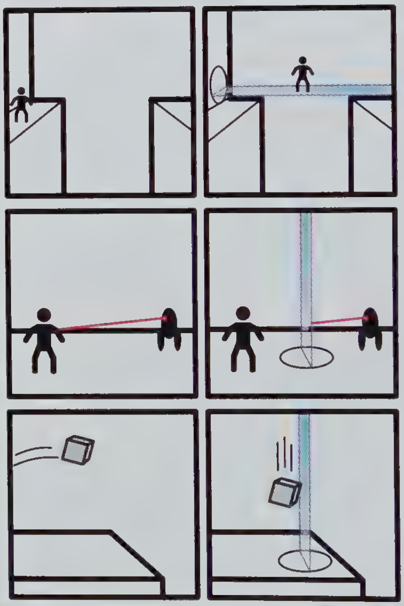
USING HARD LIGHT BRIDGES



Light Bridges can be used for transport across pits.

Light Bridges can be used to block turrets.

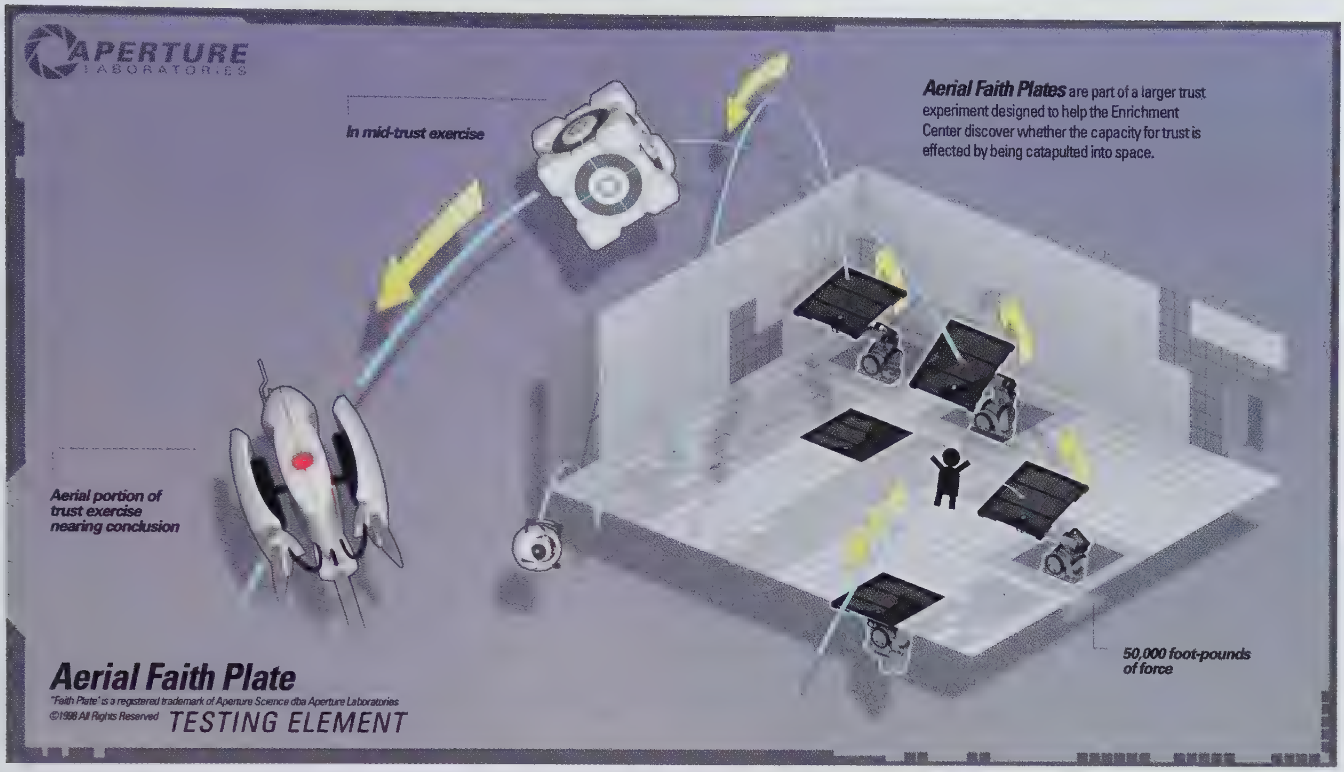
Light Bridges can be used to block or redirect flying objects.

Hard Light Bridges are made from concentrated light, resulting in a hardened beam, which can support the weight of people and objects.

Hard Light Bridges are emitted from a generator, and continue in a straight line until stopped by a wall. Light Bridges behave in much the same way as the ground; you can walk on them and place objects on them, as they are essentially a solid surface [→▢ 01]. Hard Light Bridges can be extended and redirected using portals. Portals can be fired through Hard Light Bridges, but objects may not pass through, including bullets fired by turrets. Gels can also be placed on Hard Light Bridges.

When redirecting Hard Light Bridges, the orientation of the portal matters. Different orientations of ceiling and floor portals will cause the light bridge to extend and appear in different orientations. Refer to the earlier section on portal orientations if you need help orienting your light bridges.

Aerial Faith Plates


APERTURE LABORATORIES
In mid-trust exercise
Aerial portion of trust exercise nearing conclusion
50,000 foot-pounds of force

Aerial Faith Plates are part of a larger trust experiment designed to help the Enrichment Center discover whether the capacity for trust is effected by being catapulted into space.

Aerial Faith Plate

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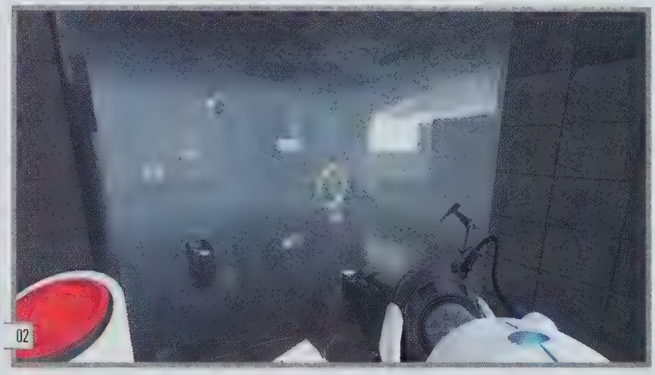
Aerial Faith Plates trigger as you walk over them, and will hurl you in a predetermined arc towards a specific destination (which is different for each individual Faith Plate). While being launched from a Faith Plate, your ability to air control is greatly reduced, but is still possible. Objects may also be launched on aerial Faith Plates [→▢ 02]. An Aerial Faith Plate will always launch an item or person to the same place regardless of the object's weight.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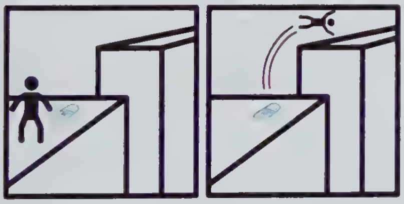
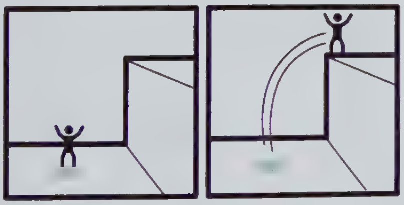
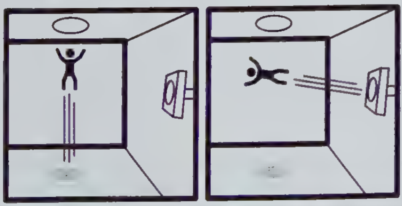
USING AERIAL FAITH PLATES



Aerial Faith Plates can be used to easily cross large gaps, or launch objects across gaps.

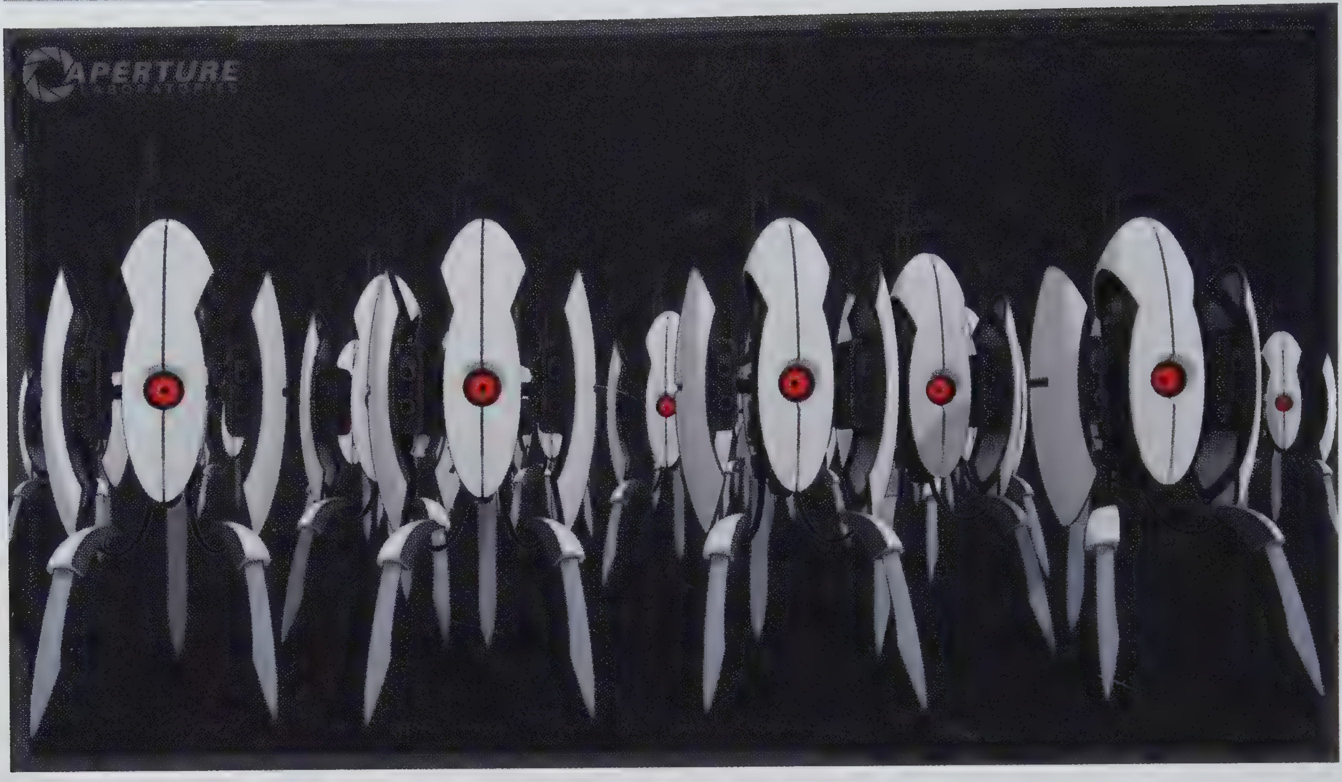


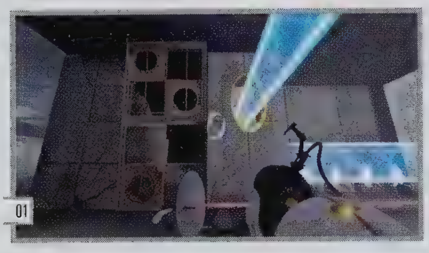
Aerial Faith Plates can be used to reach very high places just by bouncing off them.



Aerial Faith Plates can be used to gain speed for a fling by bouncing into a portal.

Turrets

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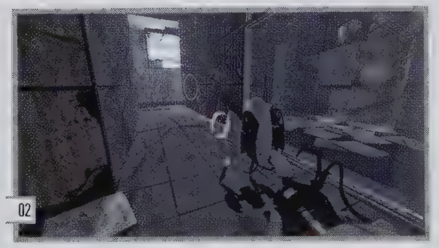

02

The Aperture Science Turret is a small white spherical object perched on three legs. Turrets will fire bullets at any person who passes in front of them.

Turrets emit a laser sight that can be used to gauge the direction they are facing. When the laser sight is unmoving and pointing forward, and the sides are closed, the turret is in sleep mode [→☐ 01]. In sleep mode, the turret will not fire, but is still on the lookout for new targets. If you pass in front of the turret when in sleep mode, the turret will go into attack mode.

In attack mode, the side panels of the turret will come out, and it will lock on and fire at you [→☐ 02]. It takes a small amount of time for the turret's panels to open, and it cannot fire until they are.

When the turret loses its lock on you in attack mode, it will enter search mode and begin searching with its laser sight. If you cross the laser sight, the turret will immediately begin firing on you again. If the turret has been searching for five seconds and does not find a target, it will retract its side panels and return to sleep mode. Any sort of disturbance, for example, being hit by the bullet of another turret, will cause a turret to go into search mode.

When searching, turrets can see you through glass or other transparent surfaces, as well as hard light bridges, but will not be able to fire through them. The field of view in which the turret can spot you is approximately 45 degrees on each side. There are a few different types of turrets you'll come across. Some have the ability to more quickly push you back with their bullets, while others are very powerful and can kill you in only a few hits.

Defeating Turrets

Turrets can be permanently deactivated by knocking them over. When knocked over, turrets will try to solicit mercy by screaming for their lives. Do not listen. Upon falling over, the turret will begin firing wildly for a period of three seconds, after which they will close their panels and permanently deactivate. Even picking up a turret and standing it back upright will not reactivate it; it's down for good.

Turrets can be knocked over by bumping into them, picking them up and throwing them, dropping them through portals, covering them in Repulsion gel, or by flying objects. Turrets can also be destroyed by hitting them with a Thermal Discouragement Beam, or by passing them through an Emancipation Grill. You can also use objects held in front of you, such as Weighted Storage Cubes, to block the bullets of turrets.

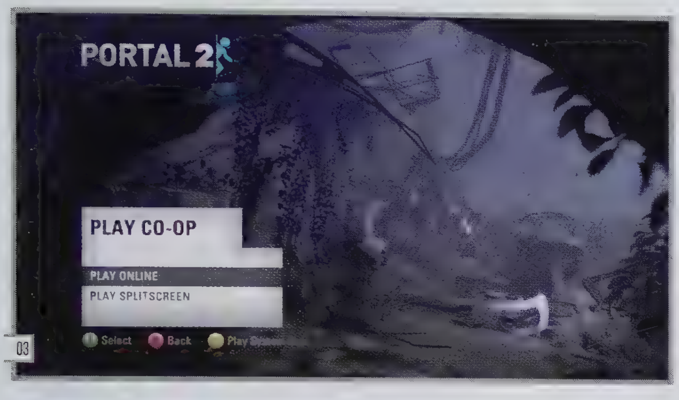
Sometimes you simply can't knock a turret over or hit it with a Thermal Discouragement Beam. In such a case, Hard Light Bridges may be used as a barrier between you and the turret. The turret can still see you, but cannot fire through the Hard Light Bridge. If no Hard Light Bridges are available, you can cover turrets in Repulsion gel. As soon as the turrets are covered, they will begin to bounce uncontrollably and will eventually be deactivated.

Crap Turrets

Like any manufacturing operation, sometimes non-functional models can be deployed in the field. While these turrets will regale you with amusing quips, they pose no other threat...

COOPERATIVE PLAY SYSTEM MECHANICS

This section covers the additional game mechanics that are brought into play for Portal 2's co-op game. Everything you need to know about playing in co-op is covered here, from setting up a game to the changes in portal mechanics when dealing with four portals instead of just two.



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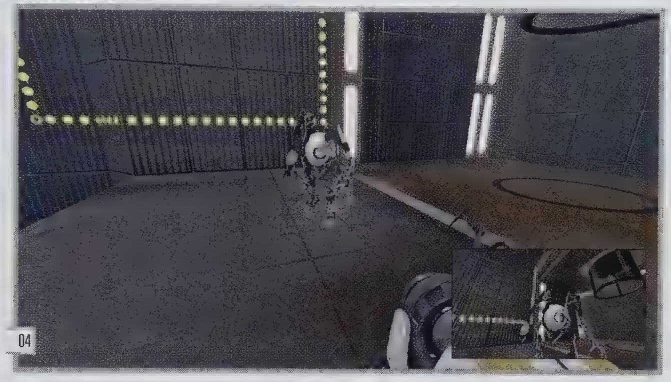


04

Setting Up a Co-op Game

First we'll look at setting up a co-op game through the menus and the various options available for doing this. These options will differ slightly depending on the system you're playing on, but there will always be the following three basic play types available.

Play Online

To set up an online game, select Play Online from the Play Co-op menu [→☐ 03]. In the following screen, your online friends will be displayed, and you can invite one to join you. When they accept your invitation, your game will begin.

Play Split Screen

To play split screen, select Play Split Screen from the Play Co-op menu. You will need two controllers, and the screen will be divided in two views, one for each player, either vertically or horizontally depending on your preference in the options menu.

System Link

If you have two systems connected through a Local Area Network and two copies of the game, you can play together using System Link. Once you have it set up, press Y on the Xbox 360 or Triangle on the PS3 on this menu to play co-op over your local network.

Co-op Portal Mechanics

Each player is given their own set of portals, which means there can be four portals active at any one time. Atlas can place teal and blue portals, while P-Body can place orange and red portals. Each player's portals are self contained, and not linked to the other player's portals in any way. You each have your own portal gun with your own set of portals.

When placing portals, you can overwrite your partner's portal by placing one of your own over it. Doing so will cause your partner's portal to fizzle and disappear. Passing through an Emancipation Grill will fizzle any portals you've placed, but won't affect those of your partner. Several puzzles revolve around this concept.

Partner View

Pressing the Partner View button will, as its name suggests, allow you to see what your partner sees. A small screen will pop up in the corner displaying your partner's viewpoint. This is extremely useful to indicate or show something to your partner, and is a vital tool for discussing and planning a course of action. [→☐ 04]

Action Icon Menu

The Action Icon menu is a context sensitive menu, from which you can select from a set of icons that can be used to indicate specific actions for your partner to take. This is useful if you are playing without voice communication, or are otherwise unable to speak. To access the menu, press left on the D-pad, and use the movement stick to choose an icon.

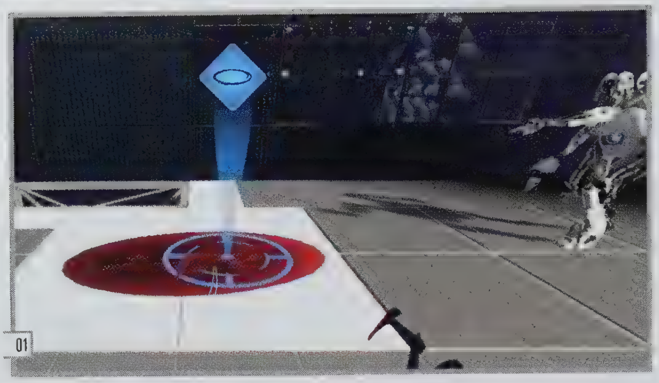
Ping Tool

All Aperture Science cooperative testing robots are equipped with a Ping Tool, which can be used to indicate positions or objects in the chamber to your partner. To use the Ping Tool, press the Ping button. An indicator will be placed on whatever surface or object is in the center of your reticule. This indicator will be visible to you, and to your partner. The Ping Tool is invaluable for simplifying communication, and should be used liberally, as there is no penalty for activating it.

You can also access the Ping Tool by opening the Action Icon menu, and selecting the eye.

Countdown Tool

When you have to coordinate simultaneous or time sensitive actions, the Countdown Tool can come in handy. To activate the Countdown Tool, open the Action Icon menu and select the stopwatch. A countdown starting from three will be displayed on both you and your partner's screen, perfectly in sync. After the countdown ends, the display will change to 'go', at which time you should do whatever it is you were going to do.


01

Stand Here
This indicator is always available, and indicates to your partner to stand in a specific spot. To place this indicator, open the action icon menu and select the image of the human over the target. An indicator with this graphic will be placed on whatever surface your reticule is over. This indicator cannot be placed on the ceiling.

Place Portal
This indicator is available while your reticule is over a portalable surface, and tells your partner to place a portal in a specific location. To place this indicator, open the Action Icon menu, and select the graphic of a portal. [→□ 01]

Enter Portal
This indicator is only available when you have your reticule over a portal and tells your partner to enter the highlighted portal. To place this indicator, open the action icon menu and select the graphic of a human entering a portal.

Fling
This indicator tells your partner to exit or Fling out of a specific portal. This indicator is available when you have your reticule over a portal. To place this indicator, open the action icon menu and select the graphic of the human flying out of a portal.

Gestures

Throughout the Cooperative Testing Initiative, you will have access to and will eventually unlock Gestures that you can use at any time. They allow you to express yourself through their use and can be used to communicate with your partner, or to celebrate the completion of a particularly tough puzzle! There are also some achievements that can be unlocked using Gestures.

The Gesture menu can be accessed by holding up on the D-Pad (when playing on a controller), and each unlocked Gesture can be selected using the right stick. The following is a list of all Gestures and when they can be unlocked.

Default Controls

Gesture	Unlock Conditions
Small Wave	You start Co-op with this Gesture already available.
High Five	You will acquire this Gesture after completing the Calibration Course.
Rock Paper Scissors	You will acquire this Gesture after completing the fourth Chamber of the first Course (Team Building).
Laugh	You will acquire this Gesture after you complete the first course (Team Building) and are returned to the Central Hub.
Robot Dance	You will acquire this Gesture after completing the fifth Chamber of the second Course (Mass and Velocity).
Team Tease	You will acquire this Gesture after you complete the second Course (Mass and Velocity) and are returned to the Central Hub
Team Hug	You will acquire this Gesture after you complete the eighth Chamber of the third Course (Hard Light Surfaces).
Trick Fire	You will acquire this Gesture after you complete the fourth Chamber of the fourth Course (Excursion Funnels)

Small Wave
After initiating this gesture, your character will wave in the direction they are facing. [→□ 02]

High Five
Celebrate your awesomeness with a congratulatory high five. After one player initiates this Gesture, as long as the other player is close enough, this will be pulled into the Gesture animation and reciprocate the high five. [→□ 03]

Rock Paper Scissors
Activating this Gesture will initiate the Rock Paper Scissors mini-game. If your partner is close enough, they will begin playing with you [→□ 04]. Whether you win, lose or draw is completely random. This Gesture is needed for the Rock Portal Scissors achievement, which requires you to win 3 games of rock paper scissors in a row.

Laugh
Have some fun at your partner's expense by laughing at him after a particularly hilarious death. [→□ 05]

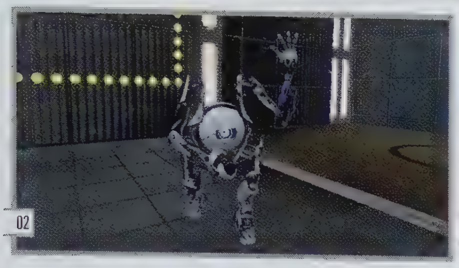
Robot Dance
Don't let the irony of a robot performing The Robot elude you with this awesome Gesture. [→□ 06]

Team Tease
Mess with your co-op partner a little by playfully dismembering him, and then rue your foolishness when he retaliates in hilarious fashion. [→□ 07]

Team Hug
At this point in your cooperative adventure you will no doubt be developing a strong attachment to your portal-hardened partner. Demonstrate this unspoken bond with a hug. [→□ 08]

Trick Fire
The final Gesture you will unlock is an acrobatic display of showmanship that emphasizes your proficiency with the Portal Gun. Place your portal in style! The portal placed will be the opposite portal to the one you fired last. It will be placed wherever your reticule was pointed when you selected the gesture. [→□ 09]

Air Gestures
You can also perform gestures in the air by pressing the button that opens the Gesture menu while in mid-air. These take a little time to activate, so they cannot just be used while jumping normally. They are best used during a Fling, while in an Infinite Fling, or while traveling in an Excursion Funnel [→□ 10]. Each character has two different Air Gestures. These are also used to get the Air Show achievement.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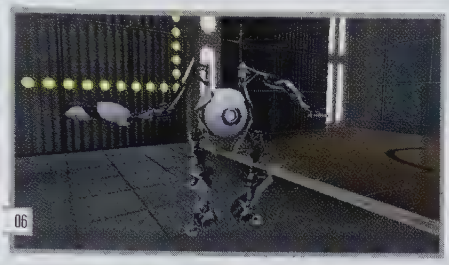
03

04

05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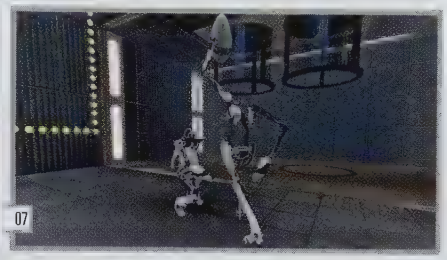
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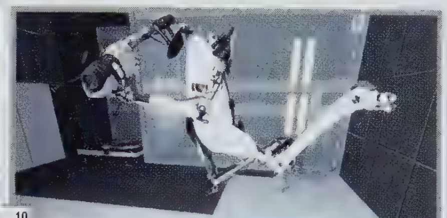
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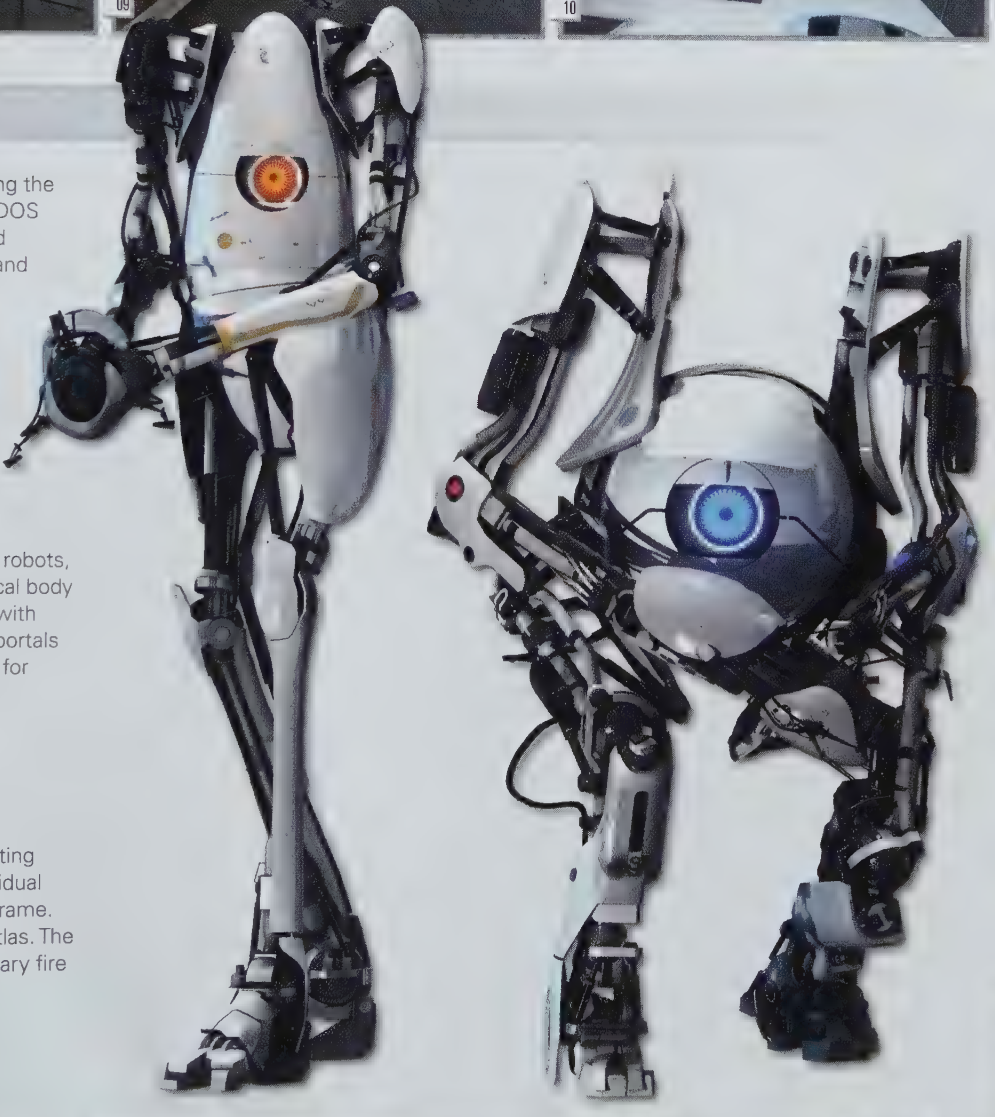
Characters

The two robots players control during the co-op game were designed by GLaDOS solely for the purpose of testing and each one has it's own distinct look and personality.



P-Body

The second of GLaDOS's prototype robots, P-Body is taller with a more cylindrical body and longer legs. P-Body is adorned with an orange theme. The colors of his portals are Orange for primary fire and Red for secondary fire.

Atlas

The first of GLaDOS's prototype testing robots, Atlas is a squat, rotund individual with streaks of Blue denoting your frame. Player 1 will always be controlling Atlas. The colors of his portals are Teal for primary fire and Blue for secondary fire.

Central Hub

After completing the Calibration Course for the first time, you will be sent into the Central Hub. This is the area from which you can access all other Courses after you unlock them one by one. If either player has not started the Co-op mode before, you will have to go through the Calibration Test first.

The area is essentially made up of a single path, leading from the starting position to the entrance of Course 1. There are a few portalable surfaces around. There is a patch of portalable surface on the main path, which will be your means of access to some of the other Course entrances. There is also a large screen above the entrance to Course 1, which will show you various stats. The order in which you receive different pages of stats and what each one shows is detailed in the table here.

Stat Shown	Unlock Conditions	Description
Steps Taken	Complete the Calibration Course	Shows how many steps both players have taken during cooperative play
Science Collaboration Points	Complete the Team Building Course	Shows how many Science Collaboration Points each of the players have collected
Portals Placed	Complete the Mass & Velocity Course	Shows how many portals you have placed
Hugs Received	Complete the Hard Light Surfaces Course	Shows how many times you have successfully used the Hug Gesture
Portals Traveled	Complete the Excursion Funnels Course	Shows how many portals you have travelled through

While you are in any of the chambers, you can open the Pause menu and choose to go back to the Central Hub. While in the Central Hub, this option is replaced with the choice to go back to the Calibration Test.

Unlocking Courses

Every time you complete a Course you'll automatically unlock the next Course. Course availability is based on whichever player has progressed further. The table here shows where the general location of each Course entrance is.

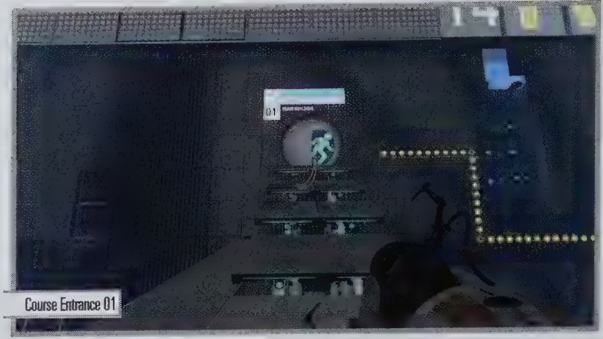
Course Number	Course Name	Entrance Location
1	Team Building	Under the scoreboard
2	Mass and Velocity	Low on the wall right of the scoreboard
3	Hard-Light Surfaces	Above and slightly right of Course 2
4	Excursion Funnels	Low on the wall left of the scoreboard
5	Mobility Gels	Directly above Course 4

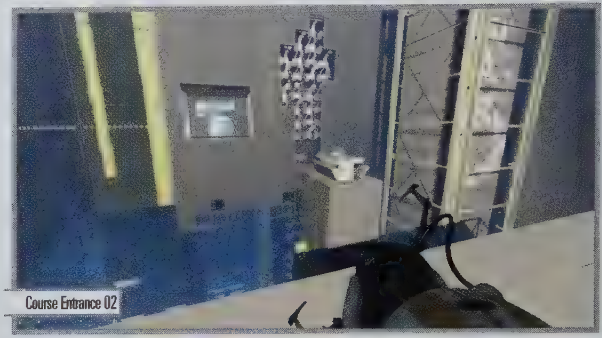
Course Entrances

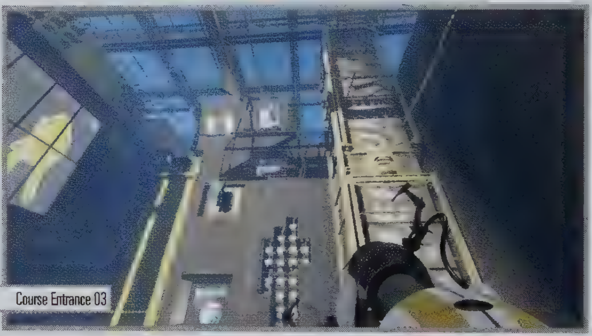
Each course has its own entrance and accompanying display. The display above the entrance door indicates the name of the course and has a series of squares corresponding to the chambers inside the course. If a chamber is completed by a player, it will be lit up with the corresponding color. A colored check mark indicates that the player has completed every chamber in the course.

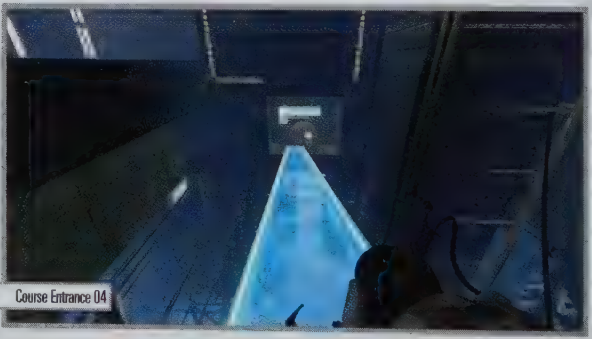
Inside each entrance is a series of monitors and an interface for selecting individual chambers within the course. To select a chamber, walk up to the interface and press the Use key over one of the arrows to move the selection. The selection and screen will be updated to reflect which chamber you have selected. Like the display above the door, the colored squares indicate which chambers each player has completed.

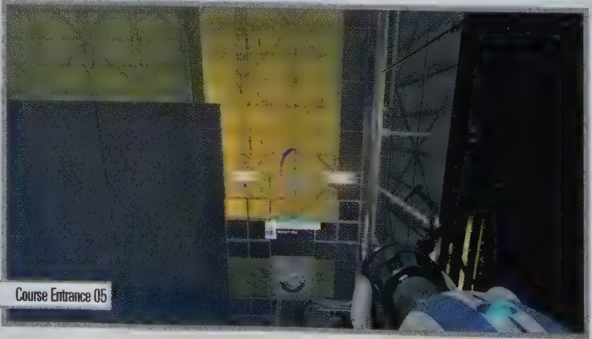
Opposite the chamber selection interface there is a portalable surface so you can bring your partner there quicker. There is no shortcut portalable surface in the fifth Course tunnel.

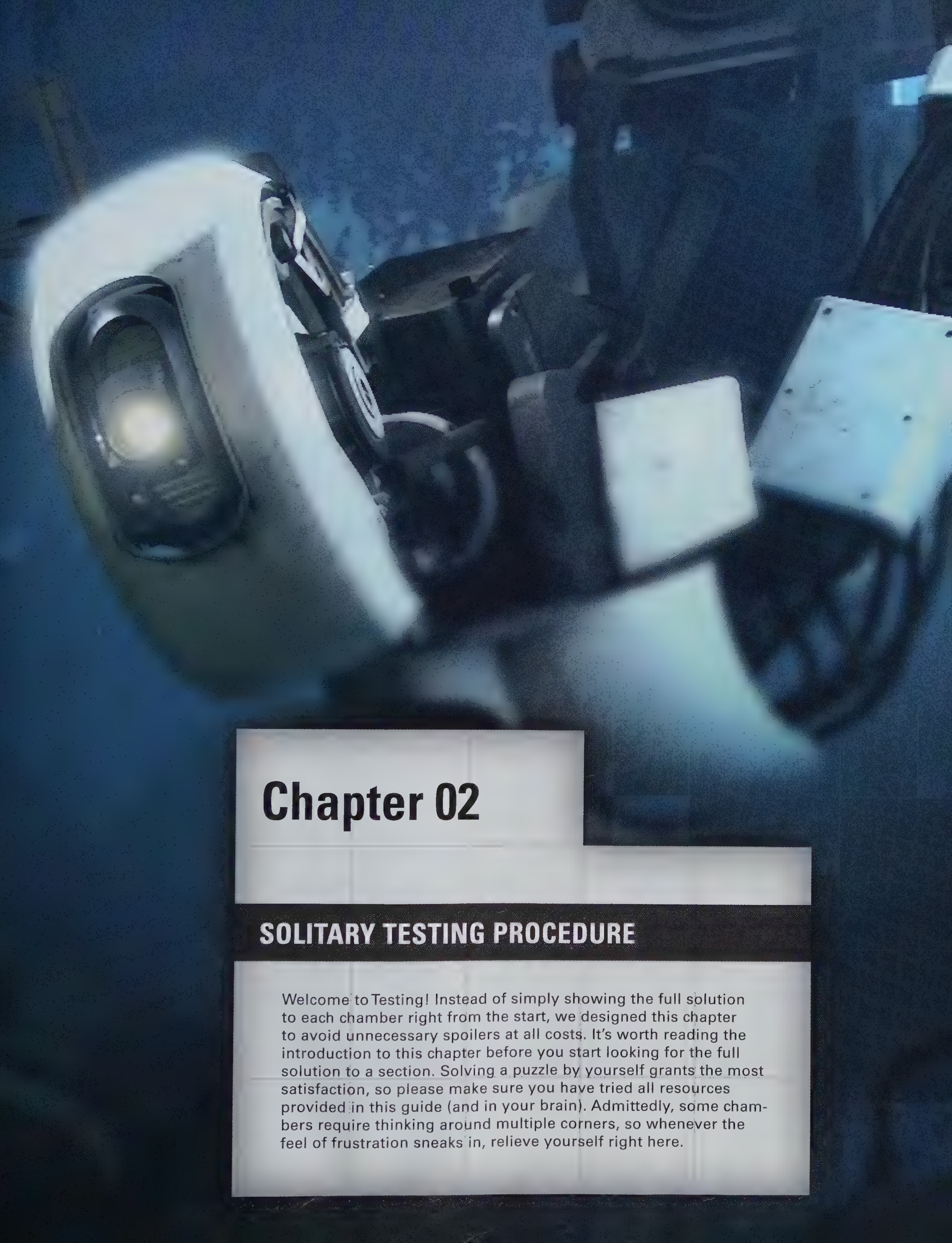

Course Entrance 01


Course Entrance 02


Course Entrance 03


Course Entrance 04


Course Entrance 05



Chapter 02

SOLITARY TESTING PROCEDURE

Welcome to Testing! Instead of simply showing the full solution to each chamber right from the start, we designed this chapter to avoid unnecessary spoilers at all costs. It's worth reading the introduction to this chapter before you start looking for the full solution to a section. Solving a puzzle by yourself grants the most satisfaction, so please make sure you have tried all resources provided in this guide (and in your brain). Admittedly, some chambers require thinking around multiple corners, so whenever the feel of frustration sneaks in, relieve yourself right here.

SOLITARY TESTING OVERVIEW

Spoiler Levels

This guide features a warning system that indicates the level of spoilers each section may contain. In this chapter, each section reveals a little bit more of the solution. This overview page reveals the number of chambers the game possesses, which is why we assigned the spoiler level 1 to it. Every following section, from textual to visual hints to the complete solution, has an increased level of spoiler potential. The actual spoiler level is identified by the blue dots at the bottom of each right-hand side page – every 2 dots is one level – and the blue lines at the right-hand side register.

Textual hints

With a spoiler level of just 2, this section pushes you gently into the right direction of the solution. It gives you just a little hint or tip that should be seen as inspiration for further thinking. After reading this small hint, it will still be you that solves the puzzle, so come here if you are want to be given a slight push in the right direction.

Visual hints

Similar to the textual hints above, this section is designed to give you some new ideas, or a different way of looking at a puzzle. In many cases screenshots reveal more than text could, simply because they can show where to shoot a portal or showcase an important element of the solution, so this section gets spoiler level 3. Still, it doesn't provide you with the complete solution – it's up to you to get the final idea.

Missing hints?

You will note that we don't provide hints to all of the sections of the Single Player campaign. This is because these sections don't include any truly complex puzzles, and some don't contain any puzzles at all. They usually serve the purpose of taking you from one game area to the next without much challenge involved.

Full walkthrough

This section is where you'll find the complete and detailed walkthrough for the Single Player game, and as such has the highest spoiler level: 4. This section actually has several purposes. Firstly, if you are totally stuck and have read the textual and seen the visual hints but still have no idea what to do, it will provide you with the full solution to any area. Sometimes, all you need is to know where to shoot a single portal and you can figure the rest out yourself. At times when this approach fails, reading the entire solution will ensure you understand exactly what needs to be done. Secondly, if you have completed a test chamber already and simply want to compare your approach to ours, be our guest. And finally, for several test chambers we provide you with alternate solutions that require more skill, but save you a little time.

Aperture Information Service

At times, additional information about the area will need to be conveyed, and that is where the Aperture Information Service comes into effect. Using this system, we can impart extra information that exposes a hidden area, or provides an alternate and sometimes faster way of getting through an area using advanced techniques. This information appears in the table here, and in special boxes during the full walkthrough. It includes special areas and Achievements/Trophies that you could miss in a specific area, as well as alternate solutions to some areas. In the table, we have deliberately made this column harder to read in case you don't want to see where a Rat Man Den can be found or an Achievement/Trophy can be unlocked, for example.

Where am I?

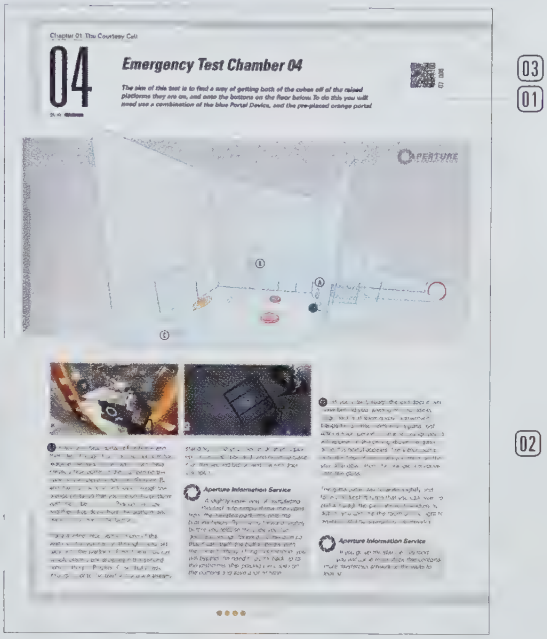
If you enter a regular test chamber, make sure you keep in mind the number on the white sign at the entrance of the chamber. This way, it's easy to navigate to the corresponding part of the walkthrough, since we always use the same numbers. However, some areas and rooms don't have any names or numbers, so you'll need to pay attention to which chapter of the game you're in, and remember that we've used the first letter of the chapter followed by a number to keep track of the current room.

ID	Chapter name / Area	Hints reference			Aperture Information Service
	Chapter 01: The Courtesy Call	**Textual**	**Visual**	**Full**	
00	The Extended Relaxation Center	–	–	44	
01	Emergency Test Chamber 01	36	39	45	
02	Emergency Test Chamber 02	–	–	46	
03	Emergency Test Chamber 03	36	39	47	„Drop Box"
04	Emergency Test Chamber 04	36	39	48	RD
05	Emergency Test Chamber 05	36	39	49	AS
06	Emergency Test Chamber 06 – A	36	39	50	
06	Emergency Test Chamber 06 – B	36	39	51	
07	Emergency Test Chamber 07	–	–	52	
C1	GLaDOS' Chamber	–	–	52	
C2	The Incinerator Room	–	–	53	
	Chapter 02: The Cold Boot	**Textual**	**Visual**	**Full**	
01	GLaDOS Test Chamber 01	36	39	55	
02	GLaDOS Test Chamber 02	36	39	56	AS
03	GLaDOS Test Chamber 03	36	39	57	RD
04	GLaDOS Test Chamber 04	36	39	58	
05	GLaDOS Test Chamber 05	36	39	59	
06	GLaDOS Test Chamber 06	36	39	60	AS, RD, „Final Transmission"
07	GLaDOS Test Chamber 07	36	40	62	AS, „Preservation of Mass"
08	GLaDOS Test Chamber 08	36	40	64	

ID	Chapter name / Area	Hints reference Textual	Visual	Full	Aperture Information Service
	Chapter 03: The Return	Textual	Visual	Full	
09	GLaDOS Test Chamber 09	36	40	67	
10	GLaDOS Test Chamber 10	36	40	68	"Overclocker"
11	GLaDOS Test Chamber 11	36	40	70	AS, ST
12	GLaDOS Test Chamber 12	36	40	72	RD
13	GLaDOS Test Chamber 13	36	40	73	AS
14	GLaDOS Test Chamber 14	36	40	75	
15	GLaDOS Test Chamber 15	36	40	76	"Pturretdactyl"
16	GLaDOS Test Chamber 16	36	40	78	RD, ST
17	GLaDOS Test Chamber 17	36	40	80	RD
	Chapter 04: The Surprise	Textual	Visual	Full	
18	GLaDOS Test Chamber 18	36	40	82	
19	GLaDOS Test Chamber 19	36	40	84	AS
20	GLaDOS Test Chamber 20	36	40	86	"Good Listener"
21	GLaDOS Test Chamber 21	–	–	87	
S1	Deeper into the Facility	–	–	89	
	Chapter 05: The Escape	Textual	Visual	Full	
E1	Turret Creation Line	–	–	91	
E2	Turret Control Centre	37	41	92	"No Hard Feelings", "Scanned Alone"
E3	The Neurotoxin Generator	37	41	93	
E4	Return to GLaDOS' Chamber	–	–	94	
	Chapter 06: The Fall	Textual	Visual	Full	
F1	Bottom of the Pit	–	–	97	AS
F2	Old Facility Foyer	–	–	100	AS, "Door Prize"
F3	Alpha Enrichment Sphere 01 – A	37	41	104	
F4	Alpha Enrichment Sphere 01 – B	37	41	106	
F5	Alpha Enrichment Sphere 02	37	41	108	
F6	Alpha Enrichment Sphere 03 – A	37	41	110	
F7	Alpha Enrichment Sphere 03 – B	37	41	112	"Schrodinger's Catch"
F8	Path to Pump Station Beta	–	–	114	"Door Prize", "Ship Overboard"
	Chapter 07: The Reunion	Textual	Visual	Full	
R1	Beta Enrichment Sphere 01 – A	37	41	117	AS, "Portrait of a Lady"
R2	Beta Enrichment Sphere 01 – B	37	41	119	
R3	Beta Enrichment Sphere 02	37	41	120	
R4	Path to Pump Station Gamma	–	–	122	
R5	Gamma Enrichment Sphere 01	37	41	124	
R6	Pump Station Gamma: Elevator Shaft	–	–	126	
R7	Gamma Construction Area – A	37	41	127	
R8	Gamma Construction Area – B	37	41	128	
R9	Pump Station Gamma: Gel Pipe Hub	–	–	129	
	Chapter 08: The Itch	Textual	Visual	Full	
I1	Experimental Test Chambers	–	–	131	"You Made Your Point"
01	Wheatley Test Chamber 01	37	42	132	"Smash TV"
02	Wheatley Test Chamber 02	37	42	133	"Smash TV"
03	Wheatley Test Chamber 03	37	42	134	"Smash TV"
04	Wheatley Test Chamber 04	37	42	135	"Smash TV"
05	Wheatley Test Chamber 05	37	42	136	"Smash TV"
06	Wheatley Test Chamber 06	37	42	137	"Smash TV"
11	Wheatley Test Chamber 11	37	42	139	"Smash TV"
12	Wheatley Test Chamber 12	37	42	141	AS, "Smash TV"
15	Wheatley Test Chamber 15	37	42	143	"Smash TV"
16	Wheatley Test Chamber 16	37	42	144	"Smash TV"
	Chapter 09: The Part Where...	Textual	Visual	Full	
17	Wheatley Test Chamber 17	37	42	147	"Pit Boss"
P1	Wheatley's Gauntlet of Traps – A	37	42	148	
P2	Wheatley's Gauntlet of Traps – B	37	42	150	
P3	Wheatley's Lair	–	–	152	

"Achievement/Trophy"
RD = Ratman Den
AS = Alternate Solution
ST = Soprano Turret

Elements of the Full Walkthrough



Chapter 01: The Courtesy Call

04

Emergency Test Chamber 04

The aim of this test is to find a way of getting both of the cubes off of the raised platforms they are on, and onto the buttons on the floor below. To do this you will need use a combination of the blue Portal Device, and the pre-placed orange portal.

01 Test Summaries

At the start of every test, you will encounter a brief Test Summary. This text is designed to give you a general insight to the goal of the test, and then a quick overview of how to solve it. By doing this we can point you in the right direction so that you can attempt the test on your own, and then if you need it, you can delve further into the full text for that test.

02 Text Points & Navigational Directories (aka Maps)

A Navigational Directory (map) can be found at the start of nearly every area of the game while following this chapter. On these directories, you'll find the locations of many of the testing elements and other obstacles that you will come across. To better guide you through these areas, each text point has a number that corresponds to the same number on the map. Occasionally you will also come across additional Position markers, which are used to further highlight the position at which specific portals should be placed.

03 Movie Codes

While the "Movie Code" feature doesn't possess its own spoiler level, it would probably be rated 10 out of 4. Naturally, we recommend not watching any of these videos until you've solved the puzzle your own. If you can't follow the solution provided in the full walkthrough or have trouble pulling off the actions required, then refer to our strategy videos. While these videos are recorded by our world-class players, we're sure that someone will find faster ways of getting through a chamber or area. New and faster strategies are being found in Portal 1 even today, three years after its release. Still, our videos may provide a starting point for shaving off seconds in your own runs. Check the intro spread of this book to see how you can access the movies.

A Note on Portal Colors

Throughout the course of this guide, we will use specific colors when describing which portals to place. This is primarily to make it easier to keep track of which portals should be where while you are reading. During your own game-play, you should feel free to use the ones you are most comfortable using.

PRELIMINARY TEXTUAL ASSISTANCE

The aim of this section is to provide you with basic hints to point you in the right direction for solving the various tests as you progress through the game. Although these hints will not give you the solution, they will always guide you towards it so that you can still get the satisfaction of finding the exact way for yourself. If after going through the textual hints for an area you feel like you need a little bit more guidance, you can skip ahead to the visual hints for another clue.

Chapter 01: The Courtesy Call

01
Hint 1: Since you don't yet have a portal gun, you'll have to use something else to activate the portals.
Hint 2: Nobody can resist pressing a conveniently placed switch.

03
Hint 1: You do not always have to jump to get out of a pit.

04
Hint 1: Although one portal is fixed in place, you still have one at your disposal.
Hint 2: Remember that Portals are two-way doors; you can enter or exit either one freely.

05
Hint 1: If you can't get to the Cubes, bring the Cubes to you!
Hint 2: Each dispenser will only give out one Cube at a time; good thing there's two.

06
A – Hint 1: Portals can be used to convert vertical momentum into horizontal momentum.
A – Hint 2: Although you can't fit through the hole in the glass, I'm sure it could be useful for something.

06
B – Hint 1: The angles of some portalable surfaces are a good indicator of where you will travel when you exit.
B – Hint 2: The lights coming from each button are not just there for show.

Chapter 02: The Cold Boot

01
Hint 1: People and objects are not the only things that can pass through portals.

02
Hint 1: This Cube appears to be somewhat different to the traditional ones.
Hint 2: The interior of the Cube looks almost mirrored...

03
Hint 1: Redirection Cubes aren't the only thing that can redirect Beams.

04
Hint 1: The platform above the moat looks like it might move under the right circumstances.

05
Hint 1: Mid-air collisions do not always have to be catastrophic.

06
Hint 1: If the Aerial Faith Plates alone aren't enough to get the job done, think of something else to extend your flight time.
Hint 2: A portalable surface above a button is rarely a coincidence.

07
Hint 1: A Beam hitting a receptacle is not always a good thing.
Hint 2: You do not have to hold your companion to move them.
Hint 3: If you need additional comfort while jumping into pits, make sure to hold your companion tight.

08
Hint 1: If you can't fire through something, fire around it.
Hint 2: Emancipation Grills do not fizzle all test elements that pass through them.

Chapter 03: The Return

09
Hint 1: You don't need to create your own momentum when there's a device that does it for you.
Hint 2: Somebody needs to put a hole in that unsightly wall.

10
Hint 1: Portal Science 101: Generating your own momentum.
Hint 2: If there's a barrier in your path, find some way to remove it.
Hint 3: What goes in on one floor doesn't have to come out on the same.

11
Hint 1: Even Hard Light Surfaces can make use of portals.
Hint 2: Portals only come in two colors, it shouldn't be hard to keep track of which one is where.
Hint 3: Unlike traditional bridges, Light Bridges are actually very easy to move.
Hint 4: Even with a whole bridge going through a portal, there is still room to fit other things through.

12
Hint 1: Light Bridges also make remarkably good nets for catching things on.

13
Hint 1: Every weapon has a blind spot, where could the immobile Turrets be?
Hint 2: A Turret on its side is a welcome sight to any weary test subject.
Hint 3: Heavy Cube + gravity + fragile Turret = victory!
Hint 4: Cubes also make handy shields, who knew?

14
Hint 1: Portals are not the only useful thing that Beams can pass through.
Hint 2: It was not an accident that three Relays were installed.
Hint 3: If you can't bend the Beam, move it.

15
Hint 1: These Hard Light Bridges are as strong as steel so can stop just about anything.
Hint 2: Flying aimless around the room won't do anyone any good
Hint 3: Death from above!

16
Hint 1: Even glass can get discouraged sometimes.

17
Hint 1: Pull the "rug" out from under the Cube

Chapter 04: The Surprise

18
Hint 1: According to the manual, Thermal Discouragement Beams are not toys and should never be aimed at anything with the potential to explode.
Hint 2: The goo in the moats is as hazardous to most test elements as it is for the subjects, so it is best to use any means possible to avoid prevent them from landing in it.
Hint 3: Just because something enters a portal vertically, does noJust because something enters a portal vertically, does not mean it will come out that way.

19
Hint 1: Just because the Aerial Faith Plate is too high to reach with a jump, doesn't mean you can't still access it.
Hint 2: The same Beam can be redirected multiple times if you have the right tools.
Hint 3: The Portal Device can even work while airborne.

20
Hint 1: We're not hunting ghosts here, crossing the Beams is a perfectly acceptable pastime with little to no chance of a catastrophic outcome.
Hint 2: Even multiple Beams will retain their integrity when passing through portals.

Chapter 05: The Escape

E2
Turret Control Centre
Hint 1: Looks like Aperture were a bit cheap when they put the windows in, that glass doesn't even reach the ceiling.
Hint 2: Some of those Turrets look a bit crap.
Hint 3: Disposing of those crap Turrets seems like a bit of a waste, if only there was something more constructive for them to do...

E3
The Neurotoxin Generator
Hint 1: Nobody can resist pressing a button.
Hint 2: Even Deadly Neurotoxin Generators can get discouraged.

Chapter 06: The Fall

F3
Hint 1: The higher you jump from, the higher you bounce back.
Hint 2: If somebody puts a target on a surface, it's a good indicator that they want you to place something there.

F4
Hint 1: The floor isn't the only thing you can bounce off.

F5
Hint 1: There are no height restrictions for placing portals.
Hint 2: Gels can pass through portals like any other test element, just don't make a mess of the area.
Hint 3: It seems that the update to the Emancipation Grills did not go through so they still do not fizzle Gels.

F6
Hint 1: The cleansing effects of water are not always beneficial
Hint 2: A portalable surface can always have a portal placed on it, even when coated in Gel.
Hint 3: Support beams can support the weight of someone even as heavy as you.
Hint 4: Avoid talking to your future or past self during this test.

F7
Hint 1: The floor is not the only thing that can be coated in Gel.
Hint 2: The last time somebody coated a Cube in Repulsion Gel it went crazy.

Chapter 07: The Reunion

R1
Beta Enrichment Sphere 01 – A
Room 1 – Hint 1: Your speed increases the further you travel along Propulsion Gel.
Room 1 – Hint 2: Gravity isn't the only means of generating momentum.

R2
Beta Enrichment Sphere 01 – B
Room 2 – Hint 1: Encountering Repulsion Gel while travelling along Propulsion Gel can lead to interesting results.
Room 2 – Hint 2: If something is blocking your path, find a way through it.

R3
Beta Enrichment Sphere 02
Hint 1: The arrows on the runway are clearly trying to tell you something.
Hint 2: The rotating panel seems too conveniently placed to be just for show.
Hint 3: Taking the additional 60 dollars is probably a bad idea.

R5
Gamma Enrichment Sphere 01
Hint 1: Ground up moon rocks are an excellent portal conductor.
Hint 2: If you need a surface to be portalable, make it so.
Hint 3: The leg braces mean you can fall from any height, without fear of injury.

R7
Gamma Construction Area – A
Hint 1: Steel Girders can support the weight of someone even as heavy as you.
Hint 2: Aperture Science provides a comprehensive health insurance package so you do not have to worry about falling while you are on a construction site.

R8
Gamma Construction Area – B
Hint 1: White is always a good base coat to start painting a room with.
Hint 2: Ventilation systems can be used to disperse many things other than air.

Chapter 08: The Itch

01
Hint 1: Excursion Funnels can also be used to carry test elements.
Hint 2: Taking an excursion through a portal sounds like an excellent way to travel.
Hint 3: What goes up doesn't necessarily have to come down.

02
Hint 1: Portals can still be fired while riding in an Excursion Funnel, just make sure not to fall into any bottomless pits.

03
Hint 1: The only way out of an Excursion Funnel is to move sideways, perpendicular to the flow.
Hint 2: Excursion Funnels also make excellent things in which to catch falling objects.
Hint 3: By only moving your exit portal, you can keep changing the position of any Excursion Funnels passing through them.

04
Hint 1: As soon as an Excursion Funnel touches something, it will get picked up and carried away.
Hint 2: The color of the Funnels isn't the only thing that changes when you step on the button.
Hint 3: A BMI of 25 of over is considered overweight.

05
Hint 1: Excursion Funnels are capable of taking you to new heights.
Hint 2: If a small platform with a portalable floor in the middle of a pit seems important, it probably is.
Hint 3: An Excursion Funnel will always catch things that pass into it.
Hint 4: Machiavelli is not the ideal reading material while attempting flings.

06
Hint 1: If things passing through an Emancipation Grill fizzle, find a way to stop them.
Hint 2: The monitor isn't the only thing that you can crash into to stop your momentum.
Hint 3: Although the Turrets are behind mesh, they are still deadly unless you find a way of sealing them in.

11
Hint 1: Although the Excursion Funnel may seem like a blessing at first, turning it off can also be beneficial.
Hint 2: Beams that originate in a pit do not have to stay there.
Hint 3: Reaching the exit will require all of the elements to be in place ahead of time.
Hint 4: A little known fact is that Franken-Turrets have no fear of heights whatsoever.

12
Hint 1: The Laser Field is the opposite of an Emancipation Grill; objects and portals can go through, but you can not.
Hint 2: Don't be discouraged, there is always a way to control test elements.
Hint 3: A stationary platform is sometimes the best kind.

15
Hint 1: Watching the destruction as it happens may reveal the path.
Hint 2: With full control of Excursion Funnels, you can bring anything you need right to your feet.
Hint 3: Creating a runway is hard work, why not let something else do the heavy lifting for you?
Hint 4: Every daredevil knows that a safe landing place is the most important part of any jump.

16
Hint 1: Boxes aren't the only things that go crazy when covered in Repulsion Gel.
Hint 2: As soon as you take the Funnel away, gravity will take over.
Hint 3: If you find that things are not flowing your way, or splating into walls, change the polarity of the situation to meet your needs.
Hint 4: If a normal bounce is not enough, try getting to a higher vantage point first.

Chapter 09: The Part Where...

17
Hint 1: Some careless maintenance nano-bot seems to have left a pipe dripping.
Hint 2: The end of a catwalk is not always the end of the path.

P1
Wheatley's Gauntlet of Traps – A
Hint 1: Portals can actually be fired through mesh.
Hint 2: Turrets are not quite as dangerous when they are floating.
Hint 3: Turrets aren't the only thing that could do with some target practice.

P2
Wheatley's Gauntlet of Traps – B
Hint 1: As per the original design specifications, the Pneumatic Diversity Vents were not made bomb proof.
Hint 2: Reducing the friction allows you to run along anything.
Hint 3: Horizontal momentum can also be converted into vertical momentum.

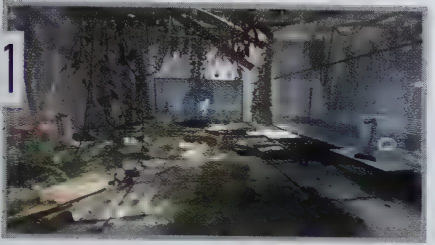
APERTURE
LABORATORIES

PRELIMINARY VISUAL ASSISTANCE

The second stage of the Preliminary Assistance comes in the form of visual hints. These carefully selected screen shots will give you an indication of the locations of the important areas that you should consider investigating, as well a quick glance at how some of the test elements and portals should be arranged. If you then require a more step-by-step complete solution to find out how to complete an area you can consult the full "Return to Science" single player walkthrough.

Chapter 01: The Courtesy Call

01



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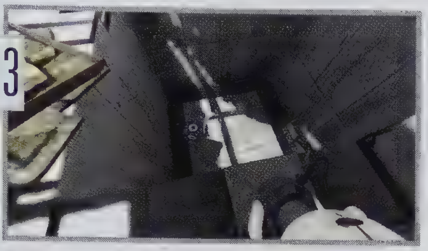

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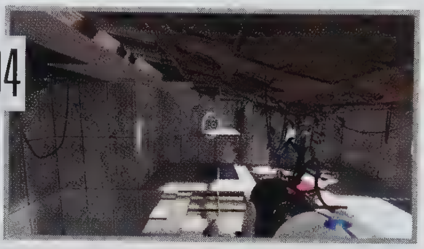

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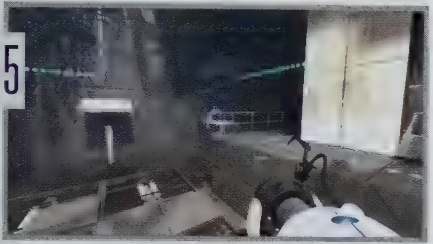

Test Chamber A

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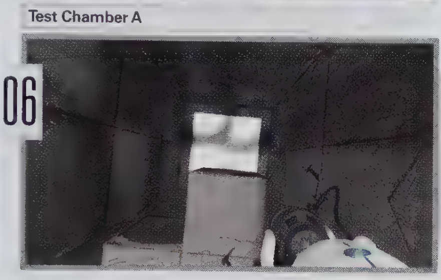

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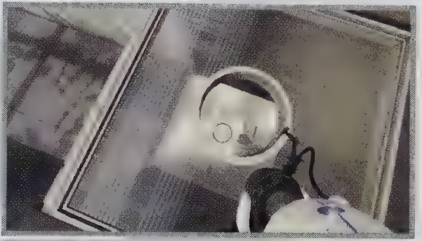

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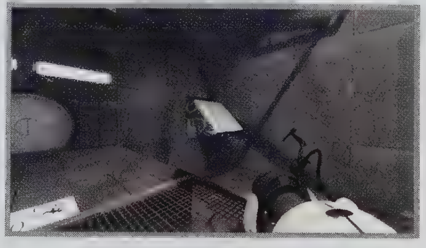

Chapter 02: The Cold Boot

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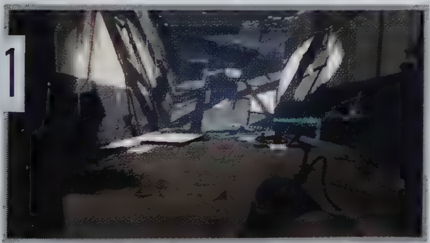

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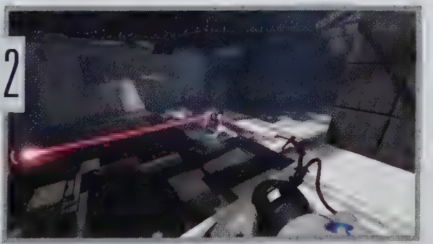

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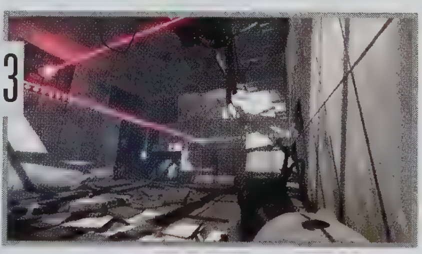

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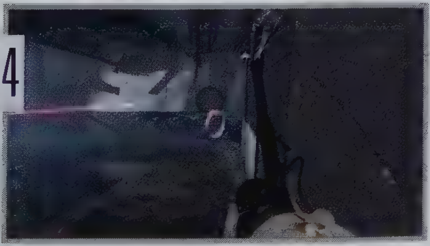

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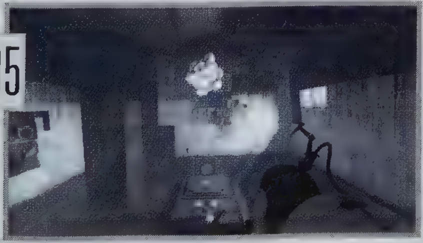

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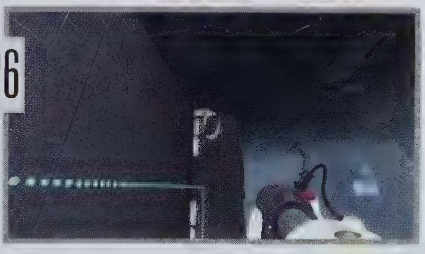

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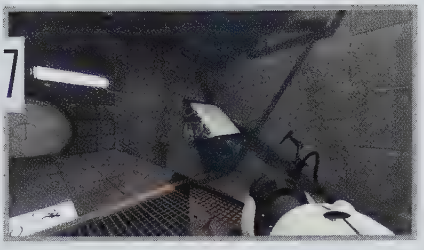

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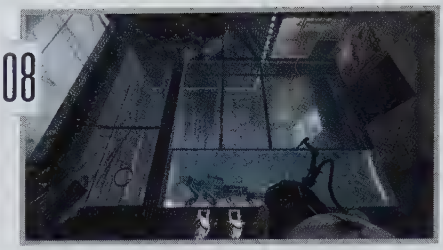

Chapter 03: The Return

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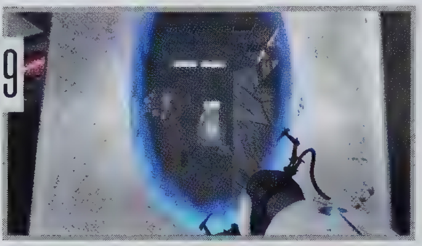

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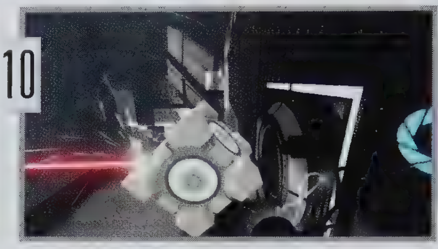

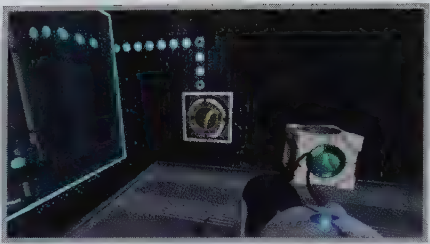

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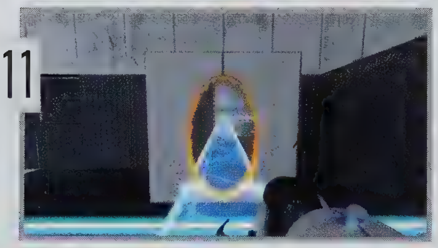

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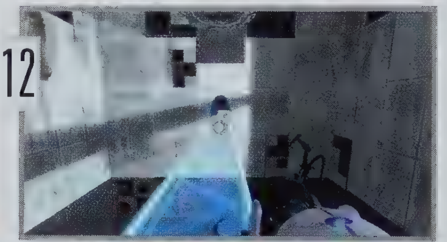

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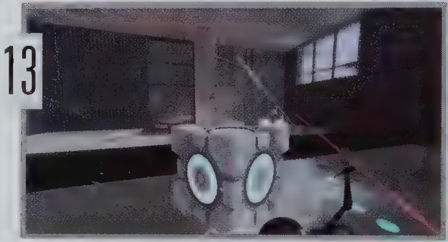

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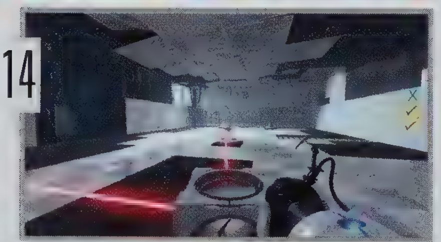

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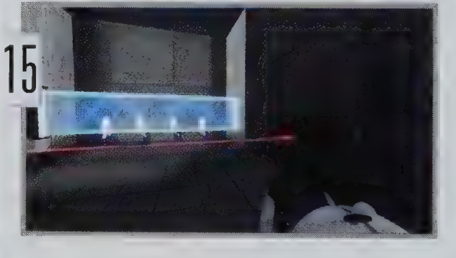

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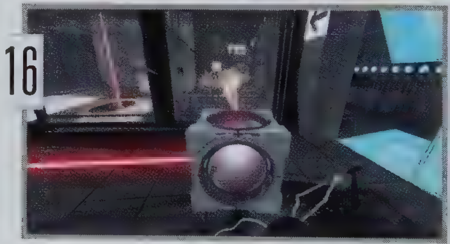

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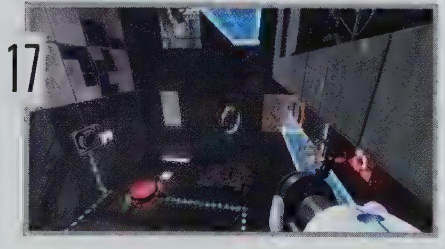

Chapter 04: The Surprise

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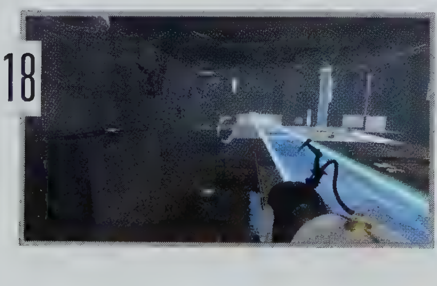

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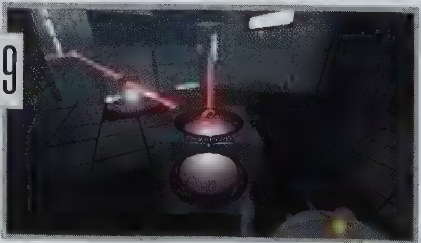

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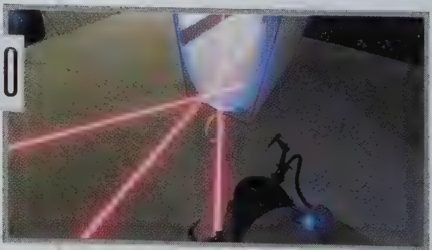
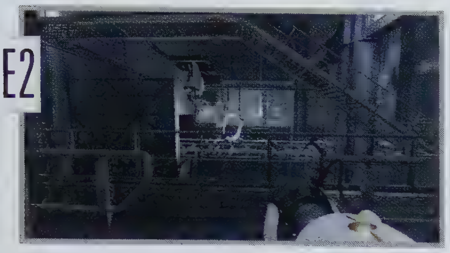


Chapter 05: The Escape

E2



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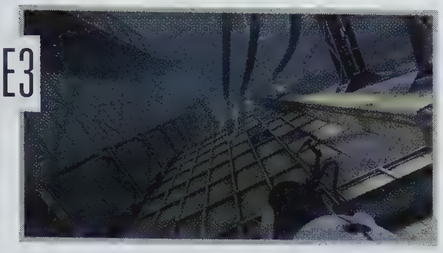
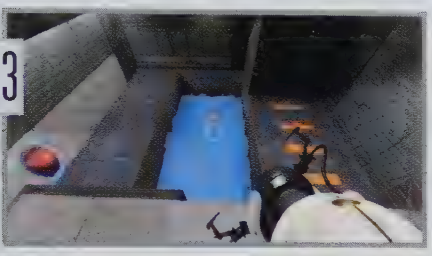


Chapter 06: The Fall

F3



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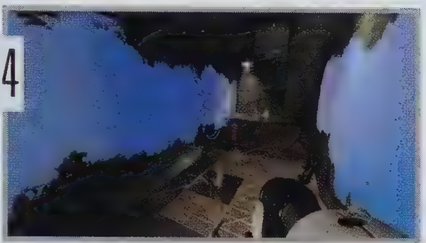

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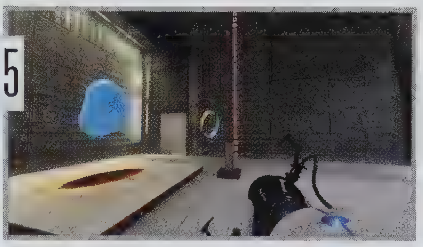

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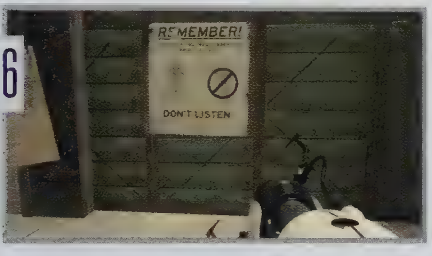

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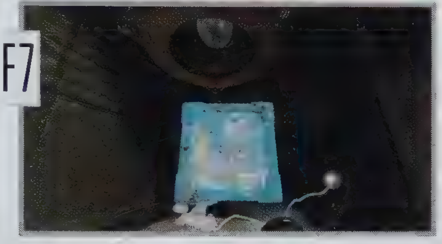
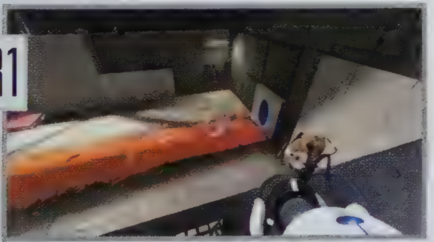


Chapter 07: The Reunion

R1



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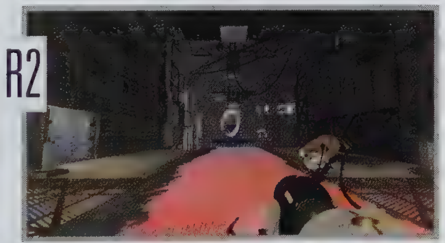

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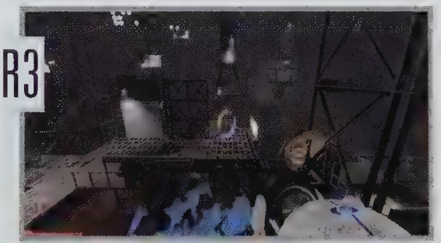

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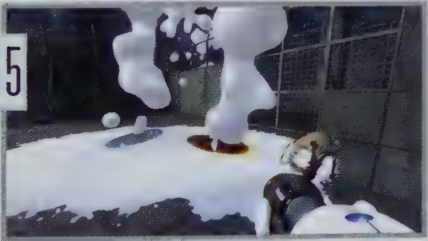
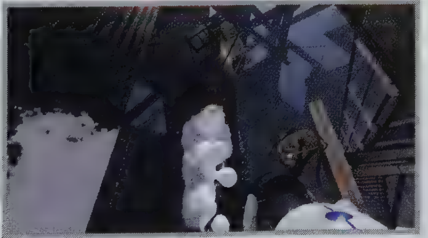
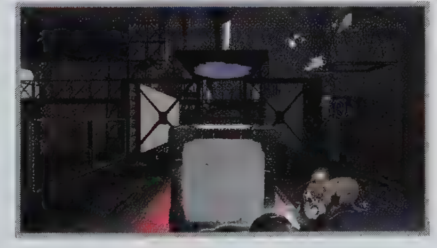
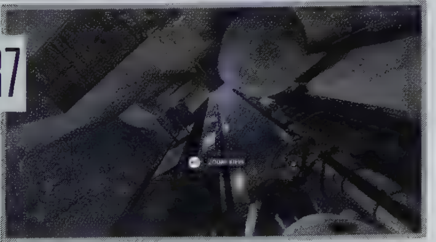






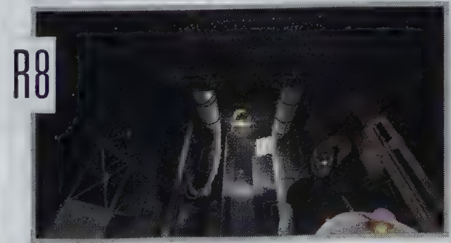
Construction Area – A

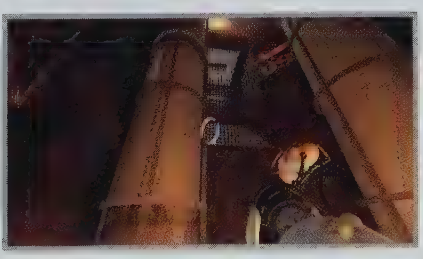
R7



Construction Area – B

R8





Chapter 08: The Itch

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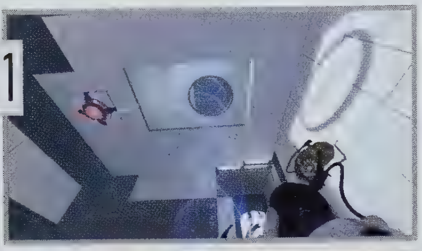

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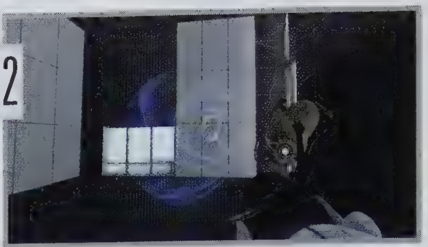

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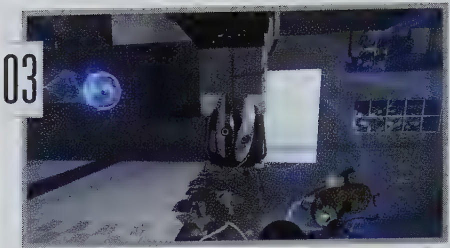

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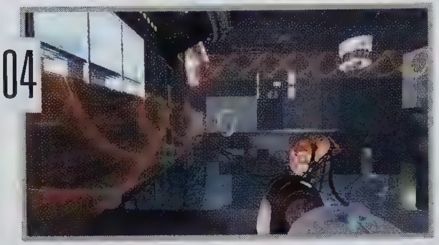

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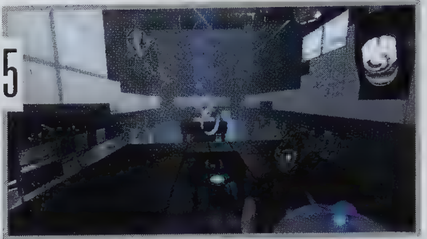

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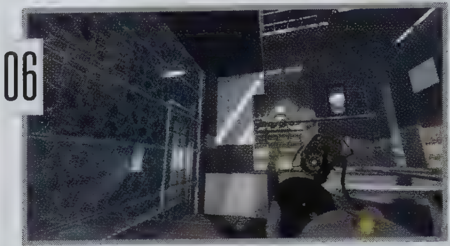

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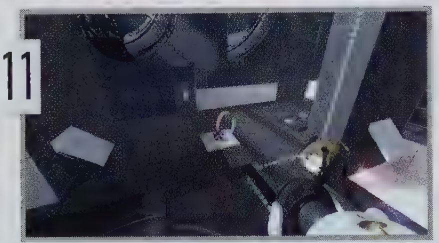

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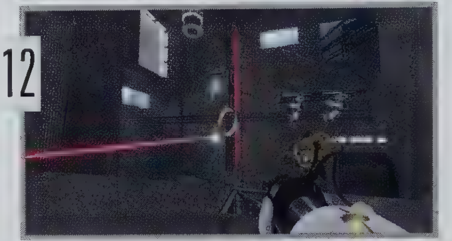

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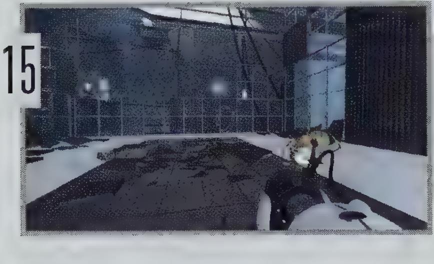

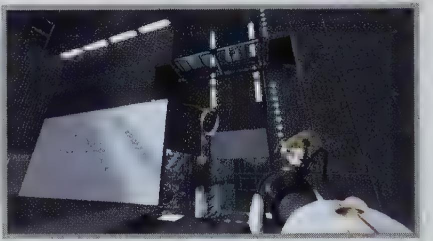

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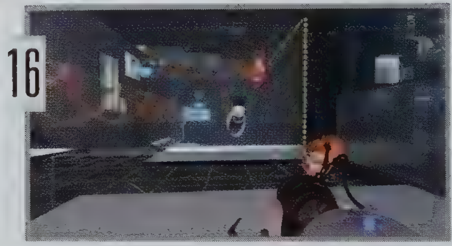
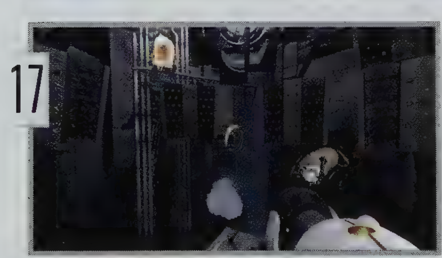


Chapter 09: The Part Where…

17



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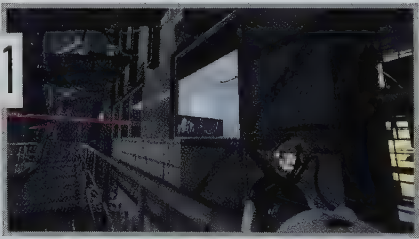

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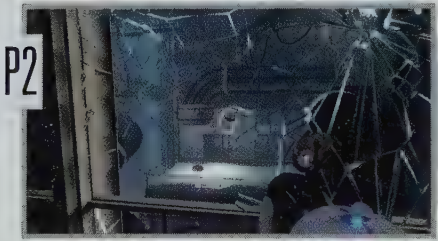
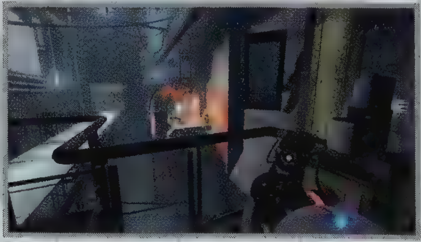
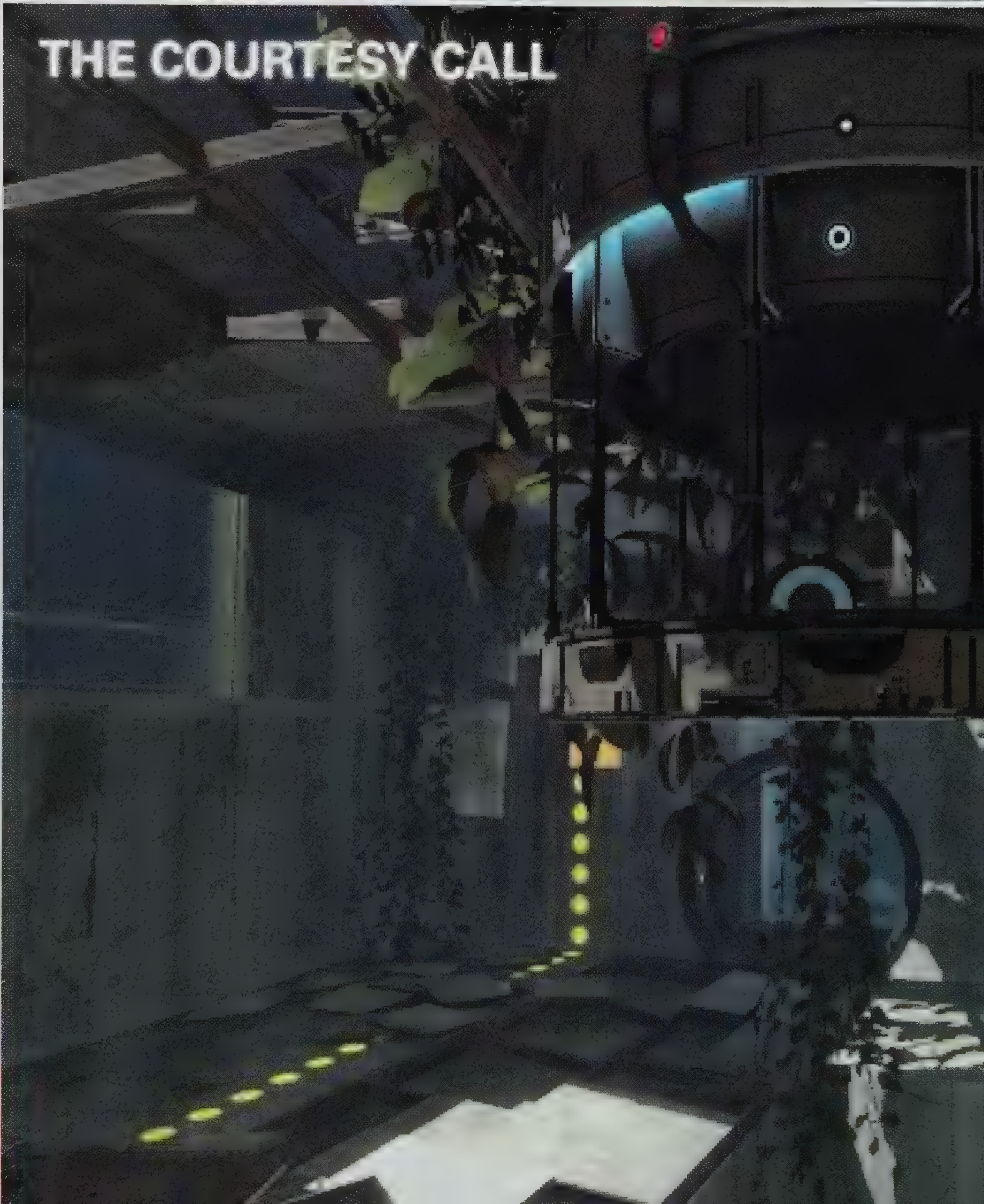




CHAPTER 01

THE COURTESY CALL



00

The Extended Relaxation Center

07_002

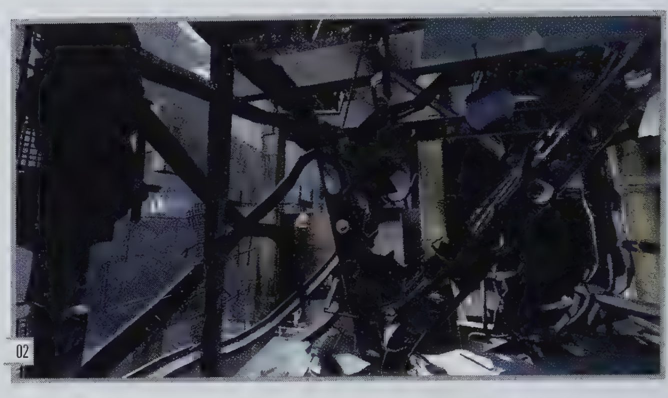
01/10

01 Upon being awakened in the Relaxation Center, you will be required to go through a number of tests to ensure that there has been no loss of physical or mental functions during the suspension period. The first two tests simply require the player to look up and down as instructed when the buzzer sounds; if the camera is not orientated to your liking, use this opportunity to enter the controller options and change the look type so that it matches your preference.

For the next test, you will need to locate the small framed picture to the side of the bed when instructed and look at it for a short period of time to reinvigorate your mental functions [→☐ 01]. A brief piece of classical music will play after looking at the artwork to further stimulate mental functions, and once that is over, you will need to return the bed and press the Use button to begin sleeping once again.

02 After being in suspension for quite some time, you will receive a courtesy wake-up call from the Enrichment Center, and at the same time you will be able to hear a voice calling from the other side of the room's door. Walk over to the door to open it and be greeted by Wheatley. After entering the room and making sure you are all right, Wheatley will enter a hatch in the ceiling and the emergency escape procedure will initiate.

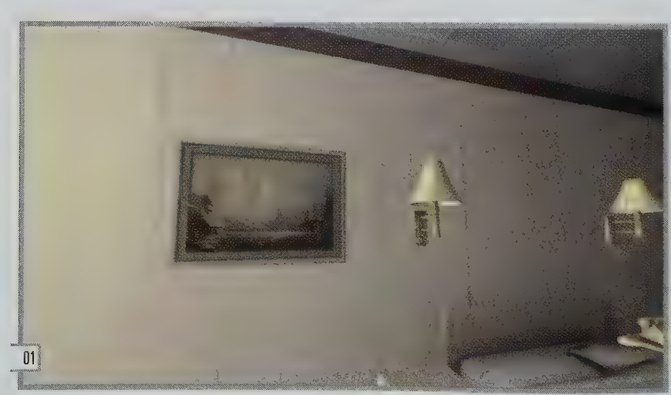
After a short time, Wheatley will drop back down through the hatch and start asking you a couple of questions. Follow the on-screen prompts to complete the tests, after which a voice will come over the loudspeaker letting you know that a reactor core meltdown has begun. Wheatley will continue to explain the situation while he tries to move your room through the testing facility to safety [→☐ 02]. The room will start to fall apart around you as it crashes into other rooms and buildings, but it manages to stay intact enough so that you are never in any risk of falling out.


02

03 After completing the manual override on the wall, the front of the room will be totally destroyed creating an opening that you can step through. Drop down onto the rubble below your room and then step out onto the broken glass roof so that you can drop down through it. Once again, you will find yourself in the Aperture Science Enrichment Centre and even though there is a crisis going on in the facility, there are protocols in place to ensure that testing can continue.

Wait for the portals to open, and then step through it and follow the path around the room to the door on the other side and step through it. In order to continue past this point you will need to complete your first test. A series of blue lights can be seen coming out along the floor from the button and these are always used to indicate what pressing a button, or other input device, will activate once triggered. If you step on the button you will see that the exit door opens, but as soon as you step off it, the door will close again.

Clearly you need something to stay on the button in your place to keep the door open, and thankfully there is a Cube Dispenser in the same room. Walk over and pick up the cube that drops out of the dispenser, and then place it down on the button so that the door stays open [→☐ 03]. Walk through the series of doors and past the Emancipation Grill to reach the elevator and step into it to reach the next Test Chamber.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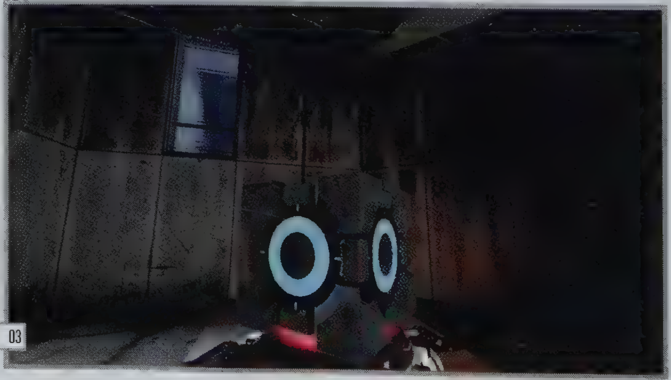
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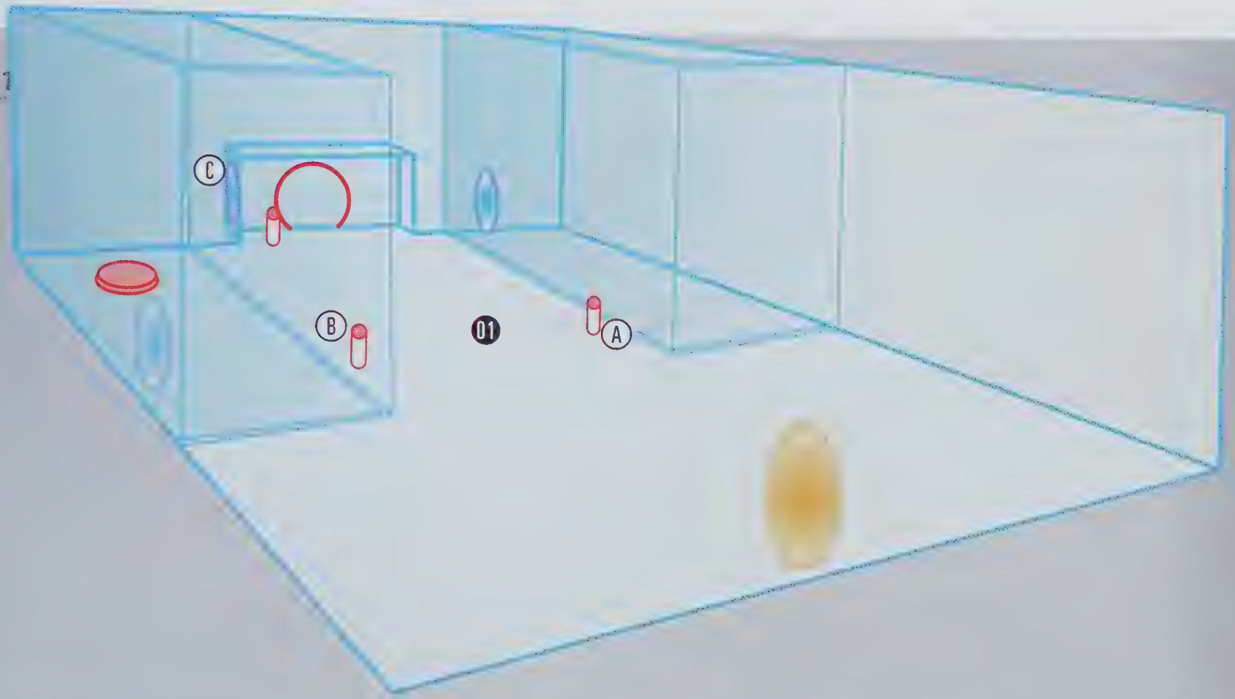
01

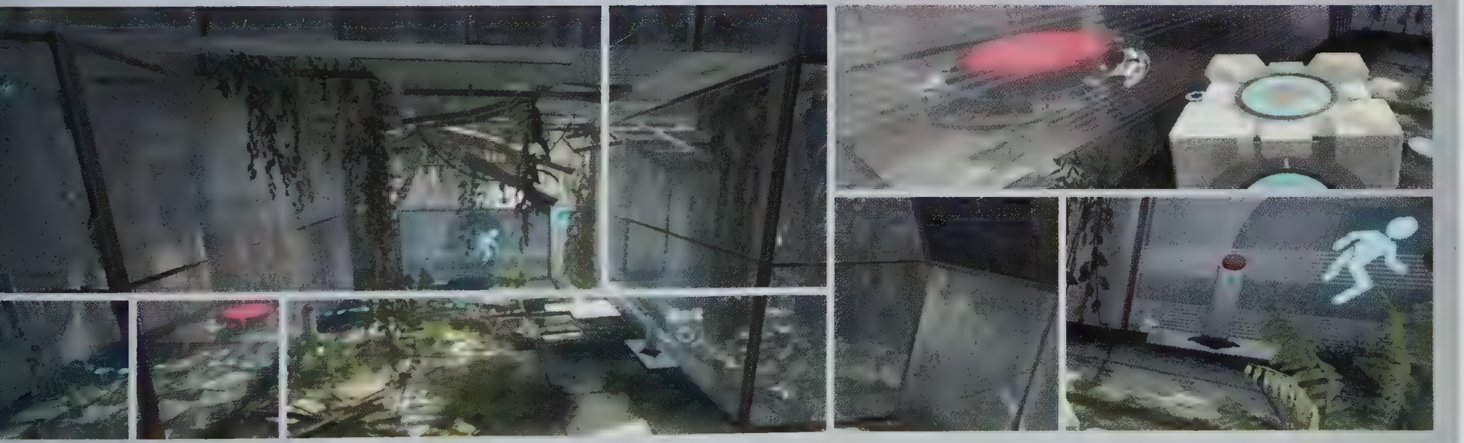
02/10

Emergency Test Chamber 01

07_003

The aim of this test is to use the switches in front of each sectioned off chamber to generate a portal inside it, so that you can get the Weighted Cube from the chamber on the right, into the one on the left.





01 Head up the stairs after exiting the elevator and then drop down into the room at the end of the corridor. Start by pressing the switch at Position A so that a portal opens up in the room with the cube. Enter the room through the portal near the entrance, and then pick up the cube and carry it back through the portal into the main room. Leave the cube on the ground near the portal in the main room, and then walk over and press the switch at Position B to open a portal into the room with the button.

Now pick up the cube and step through the portal so that you can drop the cube onto the button and keep the exit door open. Go back through the portal into the main room, and then press the switch near the exit door to open another portal on the wall at Position C. Step through the entrance portal again and head down the stairs through the Emancipation Grill into the elevator.

02

Emergency Test Chamber 02

07_004

03/10

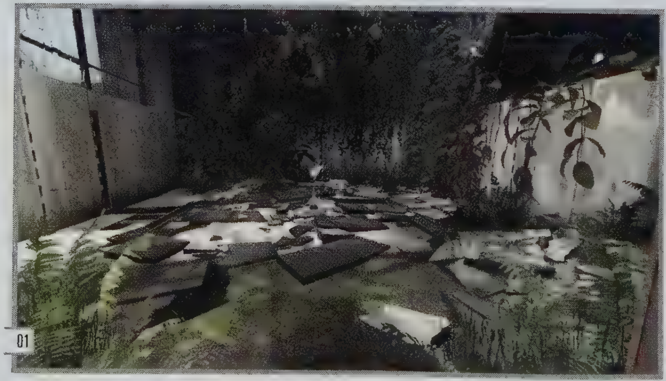
① Follow the corridor after the elevator ride and head down the stairs at the end to be greeted by Wheatley once again in the ruins of the Test Chamber. Wheatley informs you that there should be a Portal Device in the room and you should head over to the pedestal in the middle to investigate [→☐ 01]. As you get close to the pedestal, the floor beneath you will give way and you will drop down into a maintenance area below. Arrows can be seen on a wall to the left indicating the direction you should move in, so follow the tunnel along until it opens up into a room.

This area appears to be a makeshift shrine created by a mysterious figure in memoriam of the events that took place in the past during the first Portal game. Numerous pieces of artwork surround the room, each depicting key moments from history and in the center of the room raised high you can see a Portal Device.

② Use the ramp to the right of the room to reach the portal Device and you will automatically pick it up once you get close. This Portal Device is only capable of generating a blue portal so you will still need to rely on the facility to generate the orange portal for you. An orange portal can already be seen on a ledge and in order to reach it you will need to create a blue portal to connect to it. Any of the surfaces that have artwork on them are capable of having a portal placed on them, so put one anywhere and then step through it to reach the ledge.

③ Head up the ramp after going through the portal and then walk through the series of rooms and corridors until you come to a broken glass panel at the end. Drop down through the hole in the glass to reach another corridor that already has an orange portal in place at the end of it.

④ There is a pit between your position and the orange portal so you cannot simply walk over to it; place a blue portal on either of the side walls, and then step through it to reach the other side. From this position, you can see the exit door, but the path leading towards it goes down a set of stairs and there are no stairs leading back up, meaning it cannot be reached by simply walking. Place a blue portal to the right of the exit door, then walk back through the orange portal to reach the area with the door and go through it into the elevator. [→☐ 02].



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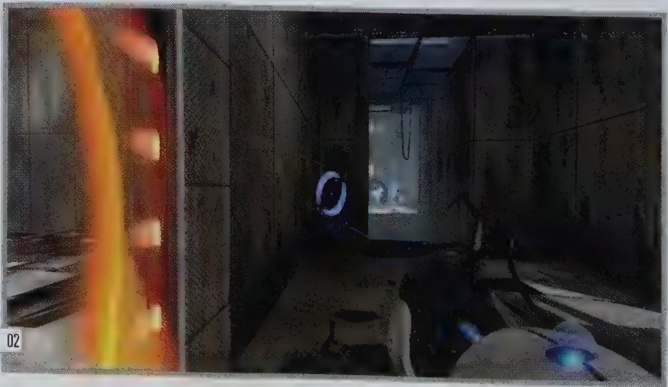


02

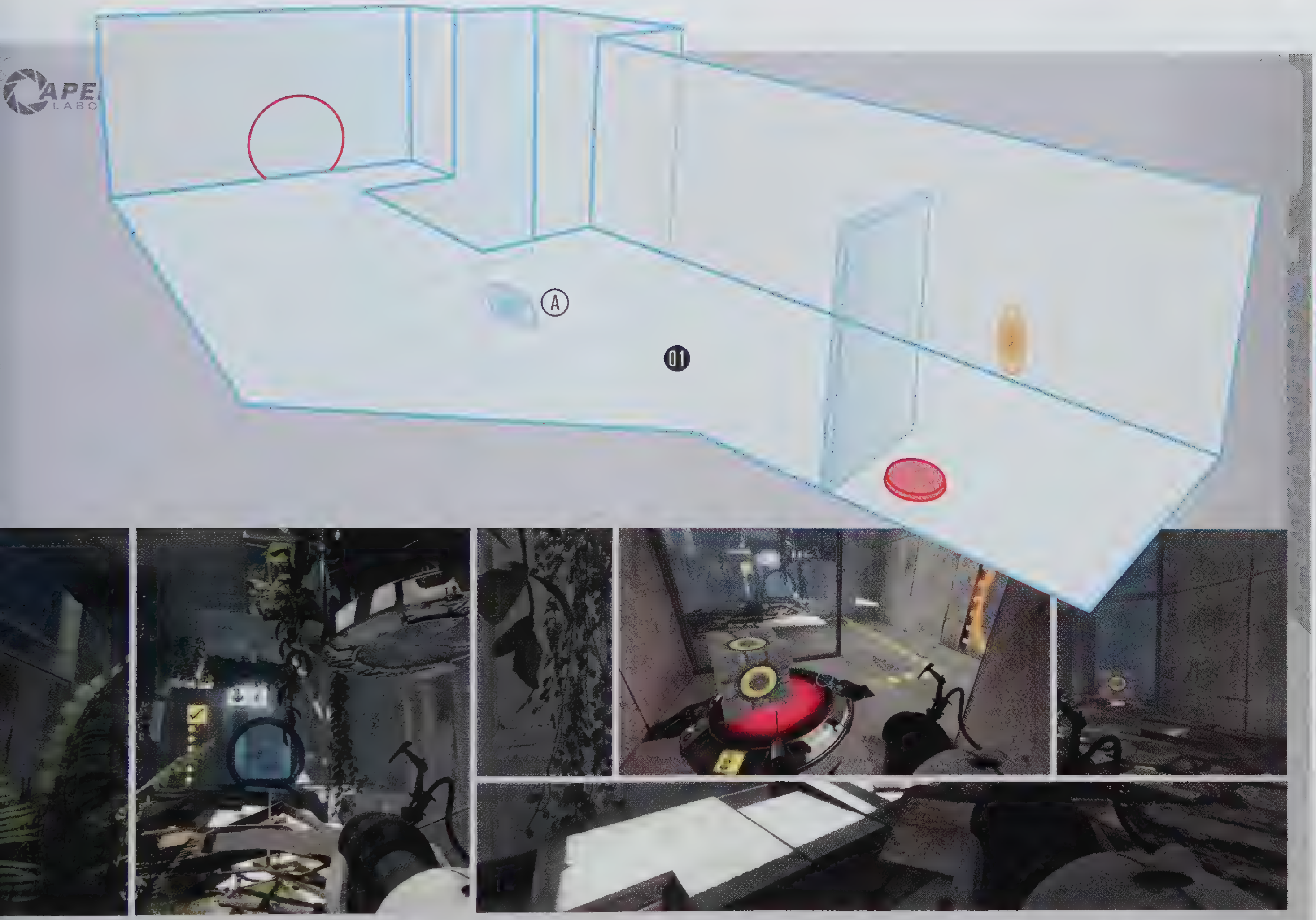
03

04/10

Emergency Test Chamber 03

The goal of this test is to find a way of getting the cube out of the pit and onto the button. To accomplish this you will need to use the blue portal to create a path leading into the pit.

07_005

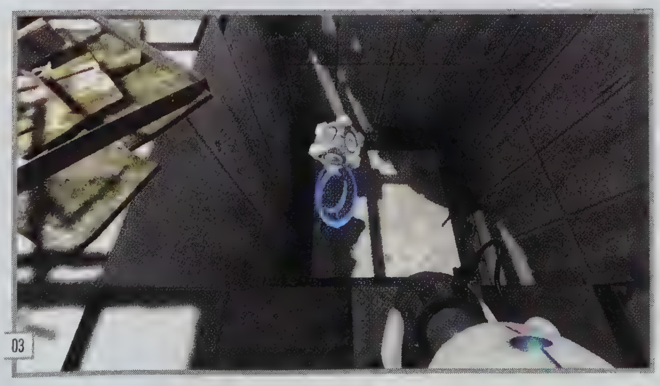


01 Rather than dropping down to get the cube, you can simply place a blue portal at Position A, directly underneath it, so that the cube falls through the portal, and out of the orange one on the wall [→☐ 03]. All you need to do then is pick up the cube from the floor near the orange portal and place it onto the button to open the exit door. The next Test Chamber is just on the other side of the door so go through it when you are ready.

Aperture Information Service

> *Once you are familiar with the area of the pit that the cubes fall onto, this can be a very good place to attempt to get the Drop Box Trophy/Achievement. As soon as you approach the dispenser, fire a blue portal onto the floor of the pit where the cube will land, before it starts to drop. The extra momentum you will gain from the box dropping directly into the portal is easily enough for it to fly out of the orange portal and straight onto the button.*

03



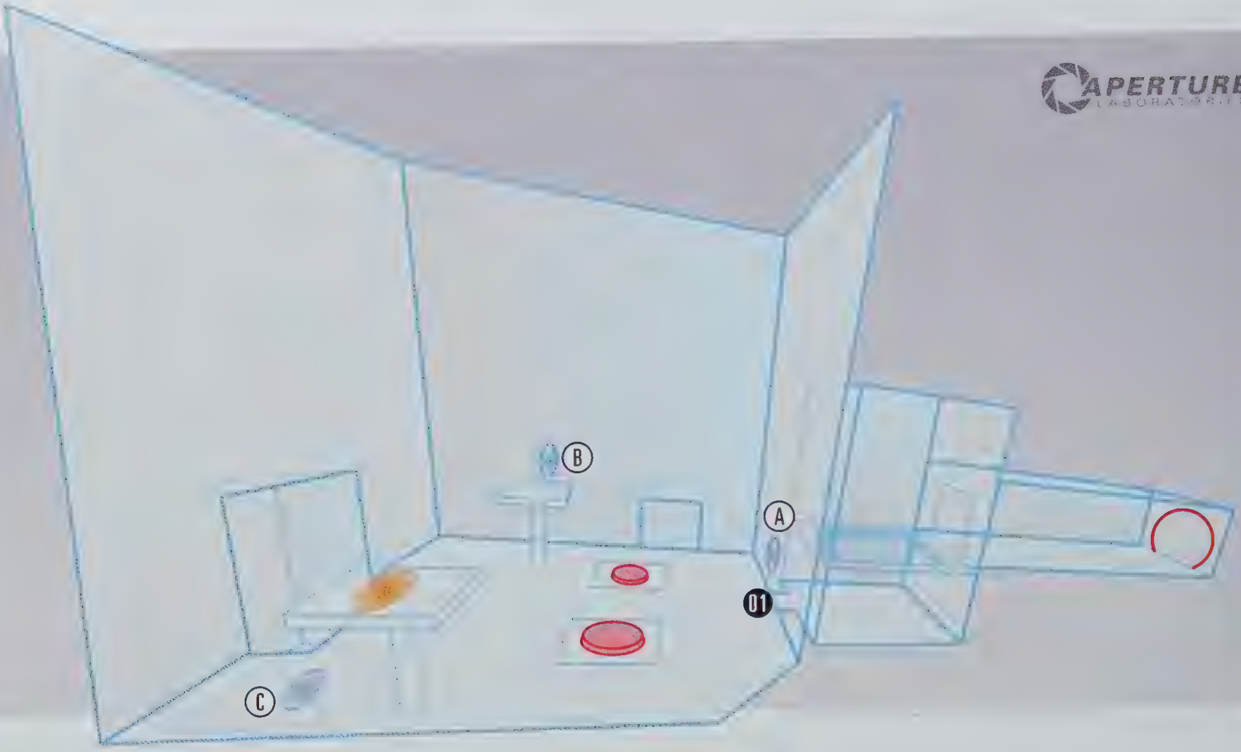
04

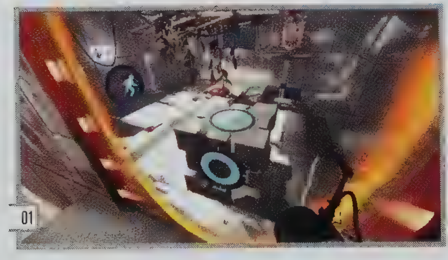
05/10

Emergency Test Chamber 04

07_006

The aim of this test is to find a way of getting both of the cubes off of the raised platforms they are on, and onto the buttons on the floor below. To do this you will need use a combination of the blue Portal Device, and the pre-placed orange portal.

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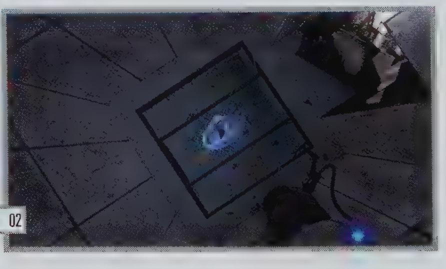
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01 Place your blue portal at Position A and then step through it so that you exit onto the ledge at the back of the room. From there, create a blue portal on the wall behind the cube on the opposite platform (Position B), and then turn around and walk through the orange portal so that you are on the platform with the cube [→☐ 01]. Pick up the cube, and then drop down from the platform and place it onto one of the buttons.

Place another blue portal on one of the walls so that you can go through it and get back onto the platform. From there, you can simply place a portal beneath the second cube in the pit (Position C) so that it falls through it, onto the platform you are already standing on. All you need to do then is pick up the second cube and drop down to place it on the second button and the exit door will open.

Aperture Information Service

A slightly faster way of completing this test is to simply throw the cubes from the elevated platforms onto the buttons below. By moving forward slightly before you release the cube you can generate enough forward momentum so that it can reach the button below with the correct timing. Using this method, you will bypass the need to portal back up to the platforms after placing the cubes on the buttons and save a lot of time.

02 As you walk through the exit door it will close behind you, sealing off your ability to go back and leaving you momentarily trapped in a small room with a glass roof. After a short period of time an orange portal will appear on the ceiling above the glass; once this portal appears, fire a blue portal onto the floor of the room you are in so that you drop down from the orange one above, onto the glass. [→☐ 02]

The glass panel will collapse slightly and form a makeshift ramp that you can walk up and although the path ahead is blocked by debris, you can use the room on the right to bypass it and go straight to the elevator.

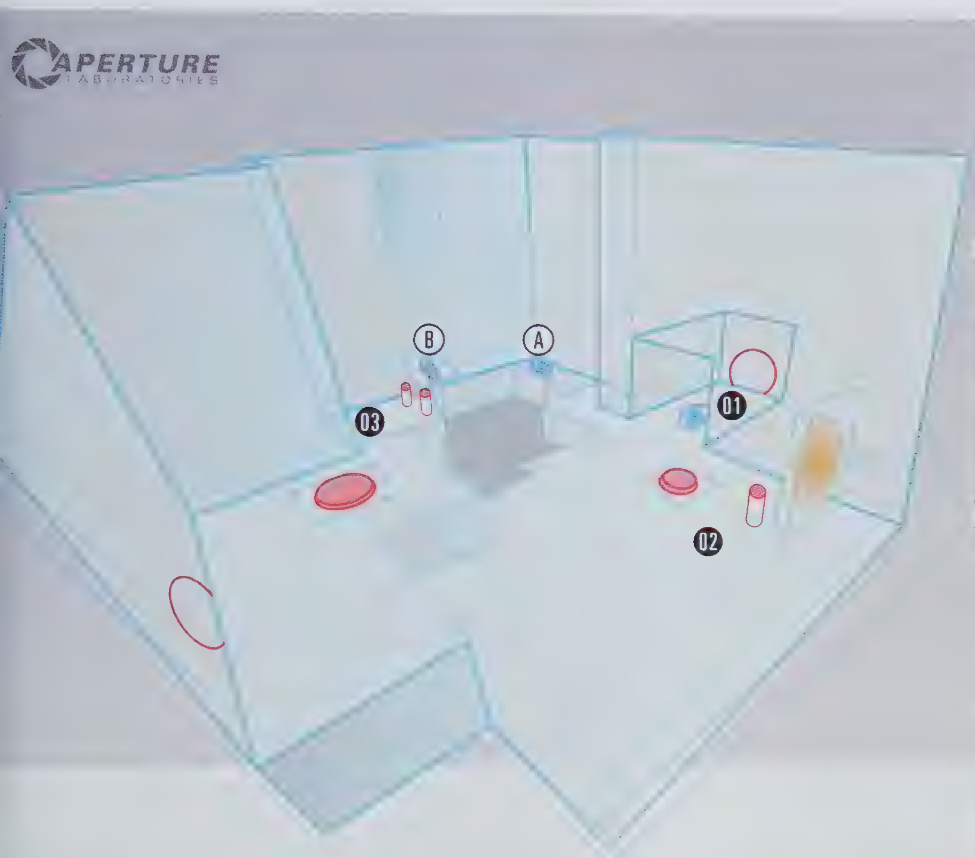
Aperture Information Service

If you go up the stairs in this room you will come to an office that contains more mysterious artwork on the walls to look at.

05

Emergency Test Chamber 05

To complete this test you need to find a way of reaching the raised area and placing a cube onto the button to open the exit. To accomplish this, you first need to create a path up to the raised area by using another cube; the only means of getting either cube is through the use of your blue portals.



01 Your path ahead will initially be blocked by debris when you first enter this chamber, but after a short time an orange portal will appear in the room on the other side, up high on a section of the wall to the left. Place a blue portal on the portalable section of the floor just in front of the debris so that you can fall through it, into the room on the other side. [→☐ 03]

02 There are quite a lot of elements involved in solving the test in this chamber but the steps required to complete it are quite simple. To begin with, press the nearby switch to activate the cube dispenser in the far right so that a cube drops down onto the platform below it. Place a blue portal at Position A so that the cube falls through it and emerges from the orange portal that you used to enter the room. Pick up the cube and place it on the button so that the ramp to the raised area to the left is activated.

03 The section of floor below the second cube dispenser is angled, so any cube dropping straight down onto it will simply slide off into the moat and be destroyed. Placing a blue portal at Position B will enable the cube to pass out of the orange portal as usual, but because of the height it is dropping from it will have too much momentum when it passes through the portals and will again end up rolling into the moat.

To stop this from happening, you will need to press the right switch shortly after pressing the left one so that when the cube passes through the portals the section of floor is still raised, stopping the cube from rolling into the moat [→☐ 04]. All you need to do then is go down and pick up the cube from its resting place, carry it back up the ramp, and then drop it onto the second button so that the exit door remains open and you can pass through to the elevator.

03

04

Aperture Information Service

By using some advanced techniques, it is possible to solve the test in this chamber using only one cube, greatly increasing the speed at which you can complete it. Start the chamber as usual by placing a blue portal under the Cube Dispenser in the far right and then press the switch to activate it. Catch the cube as it comes flying out of the orange portal, and then walk over to the raised area.

If you aim up high enough while carrying this cube it is possible to place it directly onto the raised area ready for use on the exit door button. Without the ramp you will need to make use of portal ledges to make your way up the area where the cube awaits. Place a blue portal on any wall and then start to step through it but stop as soon as the color of the portal changes from blue to orange. When this happens you will be standing on a ledge created between the portals, and from there you can place another blue portal onto one of the walls near the exit.

Collapsing the first blue portal will cause you to be pushed through the orange one, so the instant you create the second blue portal you will need to move back through the orange one or you will simply fall to the floor below. If you are having trouble with the timing for making it back through the orange portal in time, you may want to try jumping back into it since this gives you slightly more time.

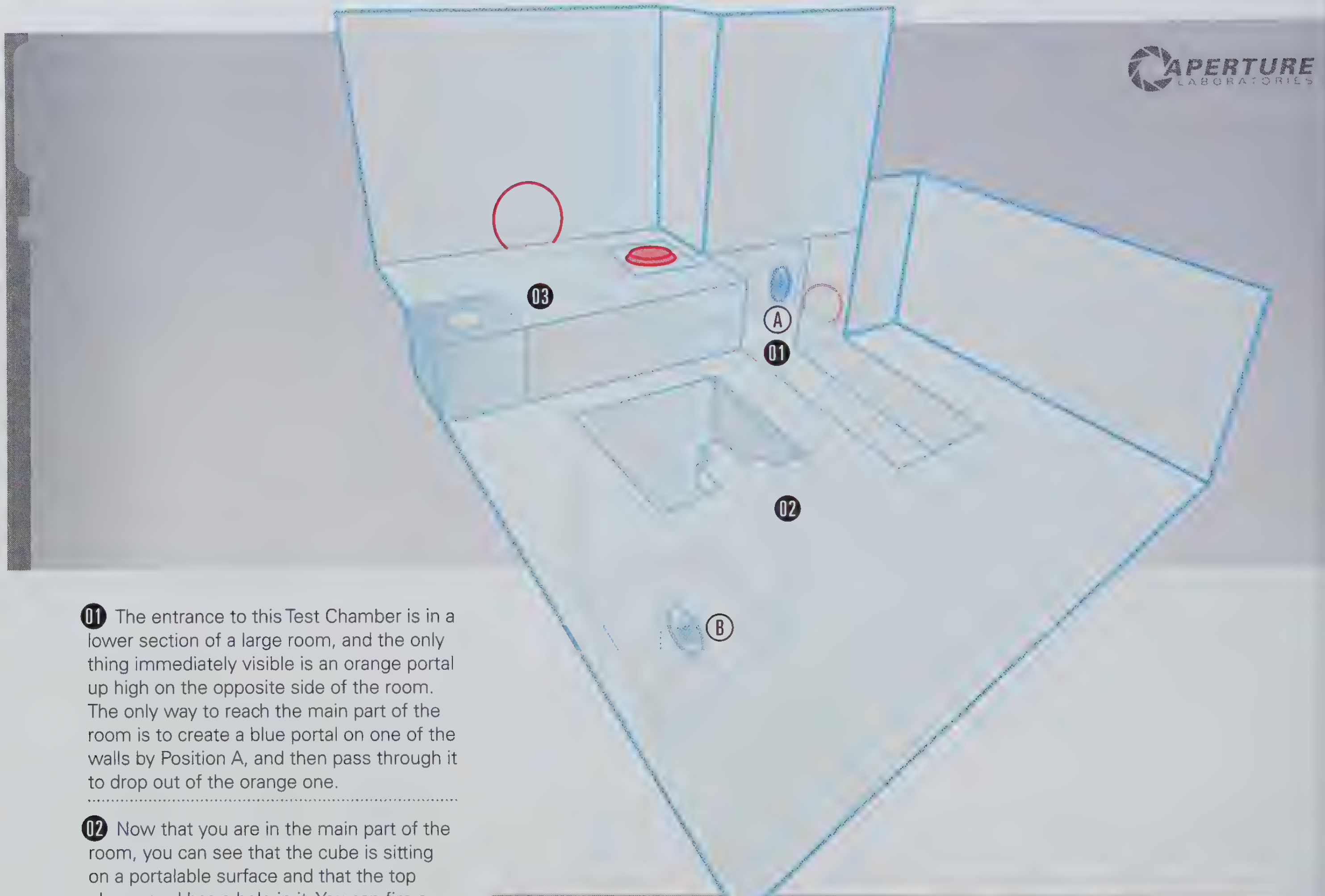
06

07/10

Emergency Test Chamber 06 – A

07_008

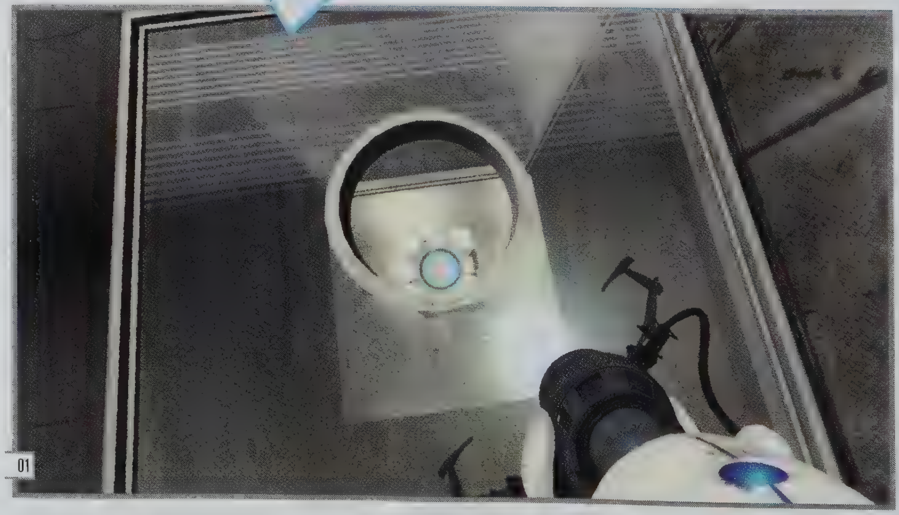
To complete the test you will first need to find a way of getting up to the raised area and acquire the cube and then find a way to place it onto the button. To accomplish this you will need to make use of the deep pit to generate momentum and then use the portals to create a fling.



01 The entrance to this Test Chamber is in a lower section of a large room, and the only thing immediately visible is an orange portal up high on the opposite side of the room. The only way to reach the main part of the room is to create a blue portal on one of the walls by Position A, and then pass through it to drop out of the orange one.

02 Now that you are in the main part of the room, you can see that the cube is sitting on a portalable surface and that the top glass panel has a hole in it. You can fire a portal through the hole, but unfortunately, you will need to be on the raised area before you can take advantage of this. Place a blue portal at the bottom of the pit (Position B) and then drop down into it so that you fling out of the orange portal and onto the raised area.

03 From this position, you can fire a blue portal through the hole in the glass that will cause the cube to drop out of the orange one [→☐ 01]. Drop back down to the area below and then place another blue portal at the bottom of the pit before picking up the cube and dropping down through the portal again. If done correctly, both you and the cube should successfully fling across the room and you can simply drop the cube onto the button and head through the airlock.

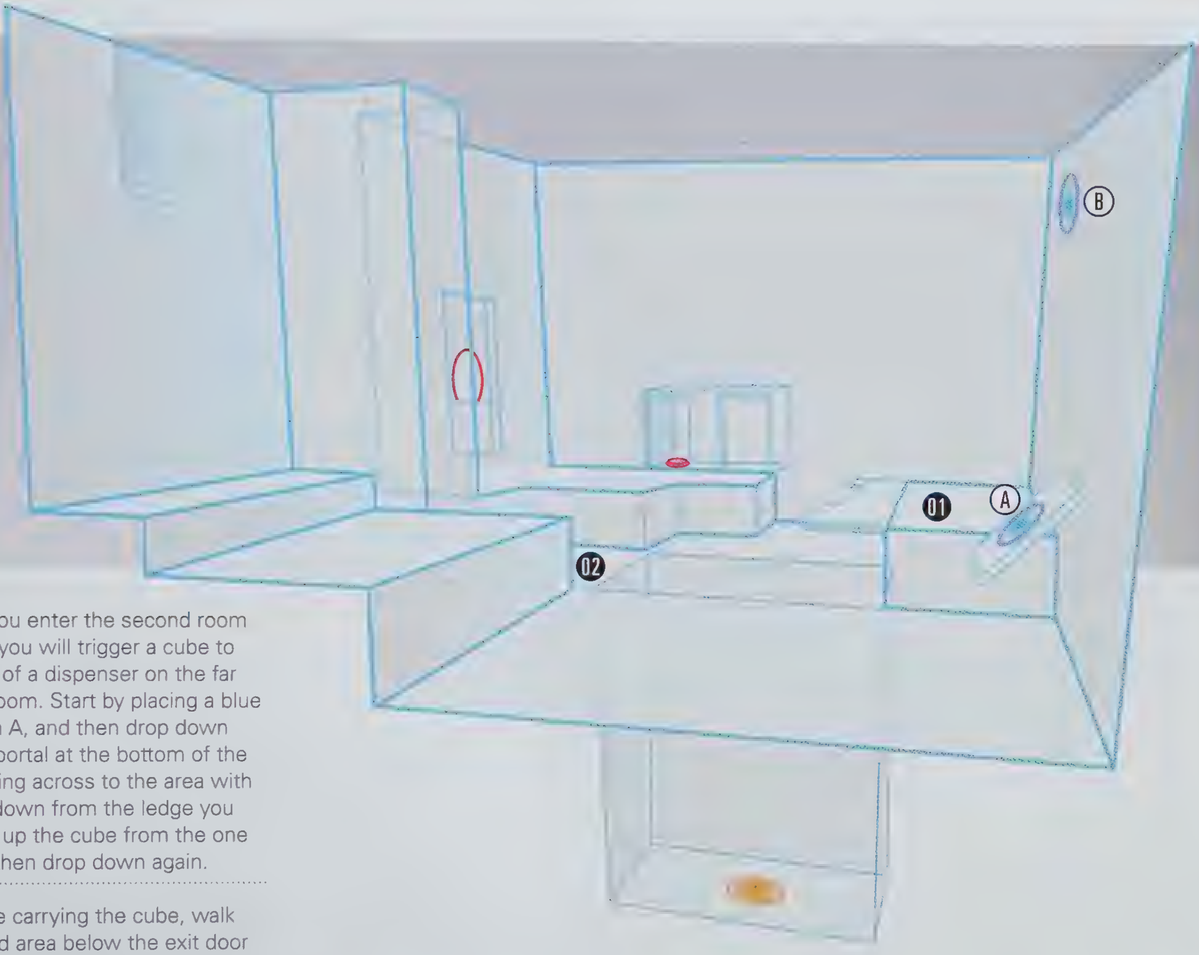


01

Emergency Test Chamber 06 – B

07_009

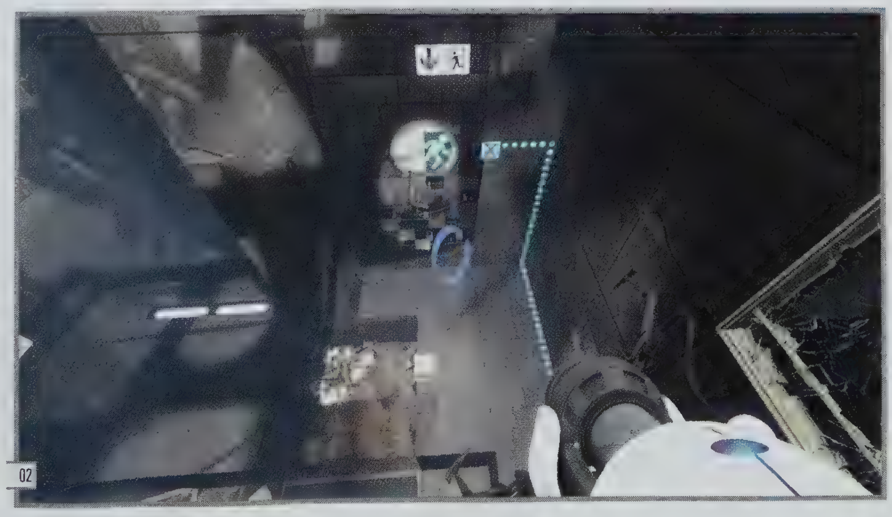
To complete the test you will again need to use portals to generate the momentum for a fling, and then use the flings to acquire the cube, get it to the button and then reach the exit.



01 As soon as you enter the second room of this chamber you will trigger a cube to come falling out of a dispenser on the far left side of the room. Start by placing a blue portal at Position A, and then drop down into the orange portal at the bottom of the pit so that you fling across to the area with the cube. Drop down from the ledge you land on and pick up the cube from the one just below, and then drop down again.

02 While you are carrying the cube, walk over to the raised area below the exit door and look up so that you can drop the cube onto the floor above. After dropping the cube, look up to the left of the entrance door and place a blue portal at Position B and then drop back down into the pit. If the blue portal was placed correctly, you should be flung across the divide and land in the area below the exit door near the cube. [→☐ 02]

Pick up the cube and carry it around the glass so that you can drop it onto the button to open the door and raise the landing platform. Keep your blue portal in the same place, and then drop back down into the pit again so that you fling across the room and land on the raised platform, from there you can head straight into the elevator to reach the next chamber.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07

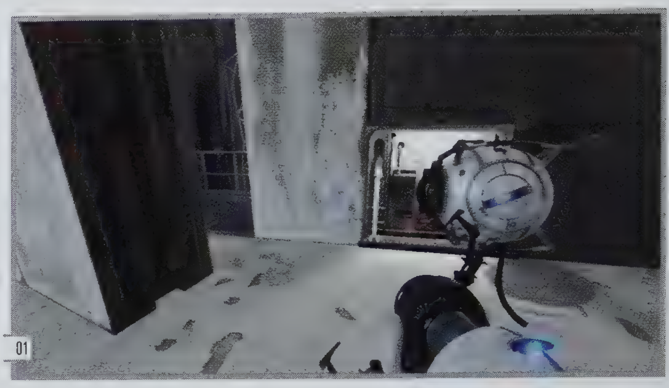
Emergency Test Chamber 07

07_010

08/10

01 Test chamber 07 is in ruin because of the restructuring of the testing facility due to the current crisis, but thankfully, Wheatley has found his way back to you and can offer some assistance. An orange portal can be seen on a section of wall that is lying on the ground and as Wheatley suggests, place a blue portal on the wall that can be seen in the distance behind him. Step through the orange portal on the floor so that you drop down into the room on the other side of the debris where Wheatley is waiting.

02 After a brief conversation, Wheatley will detach himself from the management rail and you will need to pick him up off the floor. Once Wheatley has been secured, a small panel in the wall will open up revealing a terminal that Wheatley can interface with. Carry Wheatley over to the terminal and he will automatically attach himself to it, he will, however, need some privacy to carry out his plan so you will need to turn away from him for a few seconds. [→☐ 01]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03 Wheatley managed to open up a secret panel in the wall while you weren't looking, so after he detaches himself from the interface, pick up him and head through the door. You cannot drop Wheatley normally, or place portals while you are carrying him so he will be with you until you find another interface. Follow the maintenance catwalks on the other side of the door to come to another door, and then follow the long series of catwalks past the transportation tubes to a second set of doors to move to the next area.

Chapter 01: The Courtesy Call

C1

GLaDOS' Chamber

07_011

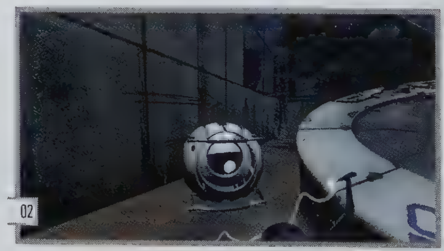
09/10

01 Once you are through the doors, continue walking along the corridor and then cross the partially ruined sky bridge on the right when you come to it. Go through the door on the other side of the sky bridge to enter a large room that was once home to GLaDOS. As you walk up to GLaDOS, Wheatley will begin giving you a history lesson on the events leading up to its destruction; follow the path around to the right of GLaDOS and start heading towards the back of the room.

02 The arrows on the wall near the back of the main room point you towards a small alcove at the back, in which there is a staircase leading down [→☐ 02]. Follow the stairs down for a short distance until you come to the end of the catwalk and then jump off the end to reach the area below.

03 Head into the small room and then follow the corridor on the other side until you come out onto another series of catwalks, and then walk along them until you come to the main breaker room at the end. Wheatley will start looking around for the switch that controls the escape pods but he will be unable to locate it. When prompted, plug Wheatley into the interface so that he can turn the lights on, unfortunately, he also triggers the platform you are standing on to begin moving upwards, activating all of the breaker switches as it rises.

04 The platform will eventually bring you back up to the room containing the wreckage of GLaDOS, but all of the switches that were triggered on the way up have triggered the power up sequence to restart GLaDOS, and she is not happy [→☐ 03]. Two claws will descend from the roof of the room and pick up both you and Wheatley, and after tossing Wheatley aside, GLaDOS will drop you down into the incinerator.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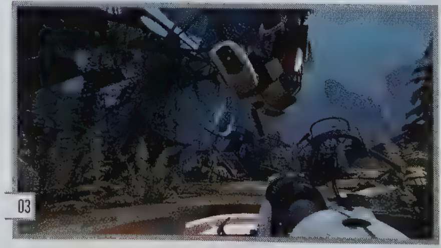
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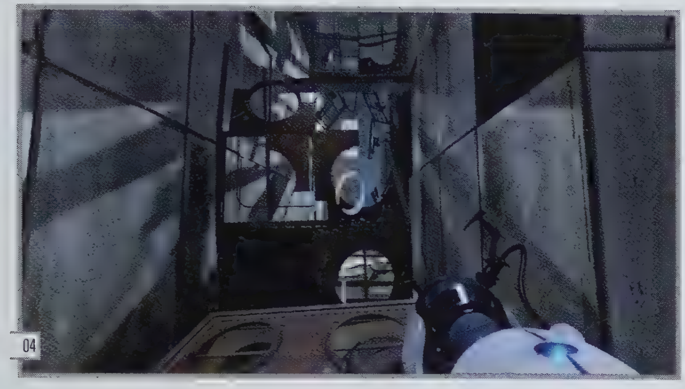
C2

The Incinerator Room

07_012

10/10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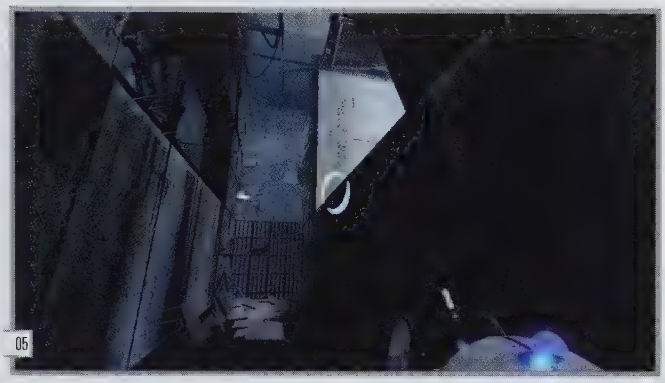
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01 It is a long drop down into the Incinerator Room, but once you are back on solid ground you will need to look for a way out. The twisted metal supports on the right form a series of bridges that you can walk along to reach the opposite side of the room and then drop down through the hole at the end. From this small ledge, you can see another room ahead that you can walk into, at the end of which is the Dual Portal Device.

There is debris piled up on top of the device so wait for GLaDOS to clear it out of the way and then pick it up. The way out of this room is along a raised corridor that is currently blocked off by a destroyed wall, meaning that you will need to use portals in order to escape. Place a blue portal on one of the side walls in the room you are in and then place an orange portal on one of the walls further along the corridor on the other side of the wall so that you can step through the portal to reach the next corridor.

Aperture Information Service

It is possible to speed up the process of making your way down this long series of corridors by using the Portal Peeking technique. If you place the exit portal on the wall at the end of each section of the corridor you can peek through the portals to see down the next section of the corridor, allowing you to get your next portal in place. Then you just need to keep moving between portals quickly so that you do not fall down. This method can take some practice, but when mastered will significantly improve your time through the area.

02 After walking down this first section of corridor for a short distance, you will find that the way ahead is again blocked and you will need to use portals to get around the obstacle [→☐ 04]. Place a blue portal on the wall on this side of the blockage and then place an orange portal on any of the walls on the other side. Once the second portal is in place, step through it and continue along the corridor.

03 At the end of the corridor, the stairs that would normally allow you to advance have been destroyed, but thankfully, GLaDOS is online and can provide some assistance. Wait for GLaDOS to move a portalable section of wall into view in the room to the left and then place a portal on to it. Place your second portal on one of the walls in the corridor so that you can then step through it to reach the small room.

04 From this small room you will need to drop down into the next corridor on the other side and then follow that along until you round the corner. A light will flicker on as you move around the corner, illuminating a small alcove above the corridor to the right [→☐ 05]. Place a portal onto one of the walls in the alcove, and then place another in the corridor so that you can step through it to reach the alcove.

05 From the alcove you will be able to see into a room on the other side of the corridor with has a portalable wall on the back of it. Reposition your portal from the corridor to the wall at the back of the room ahead, and then step back through the portal in the alcove to reach the room.

06 There is a corridor leading out of the room on the left-hand side as you look back to the alcove which is the only way out. Follow this corridor along and wait for GLaDOS to move the broken panels out of the way so that you can go through door and into the elevator to complete the chapter.

CHAPTER 02

THE COLD BOOT

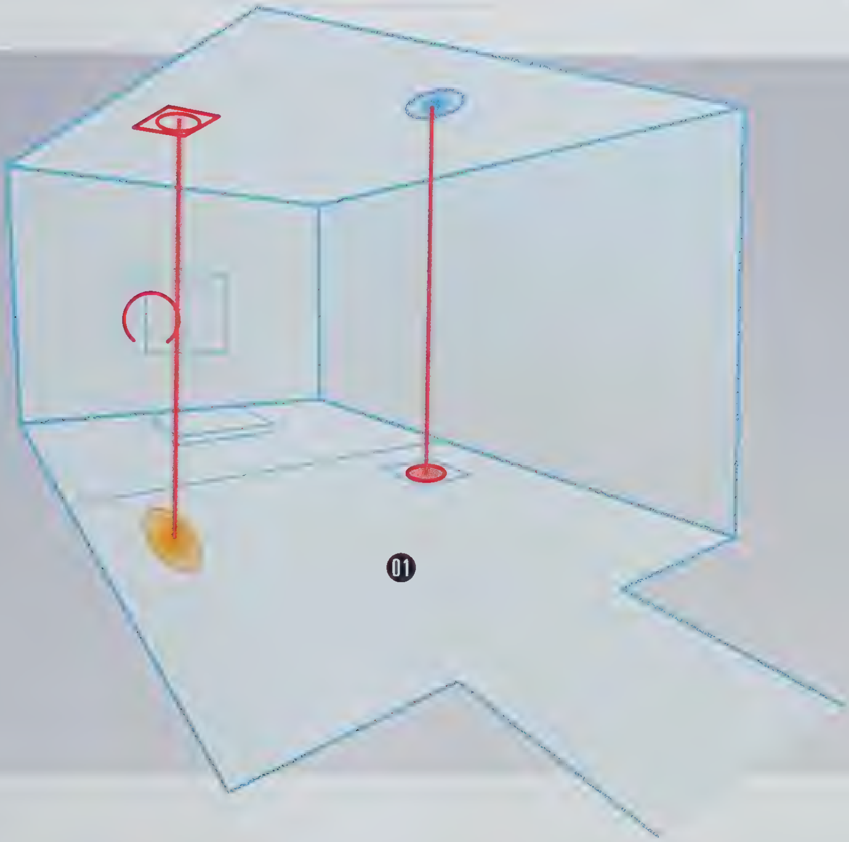
01

01/08

GLaDOS Test Chamber 01

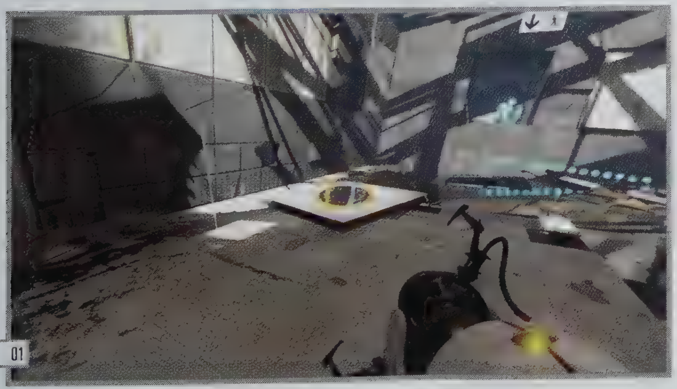
07_013

This Test Chamber introduces you to Thermal Discouragement Beams, and while these beams may not kill you instantly, the accumulative damage of successive hits can soon build up to lethal amounts. The aim of this test is to get the beam into the receptacle so that the platform in front of the exit rises. The only means you have of accomplishing this is by redirecting the beam using portals.



01 When you first enter this Test Chamber, it will still be in disarray and you will have to wait a few moments while GLaDOS moves the test elements into their correct positions. The beam is firing down onto a portalable surface, so place your blue portal directly underneath it [→▭ 01]. The platform will begin to rise as soon as the beam hits the receptacle, so you will need to be standing on it before you create the next portal.

Step onto the platform and then look directly above the beam receptacle and try to locate the faint orange glow that it is emitting onto the ceiling. Placing your orange portal directly onto the orange glow will ensure that the beams will line up and cause the platform to rise [→▭ 02]. Once it is as high as it can go, step off it and go through the exit and into the elevator.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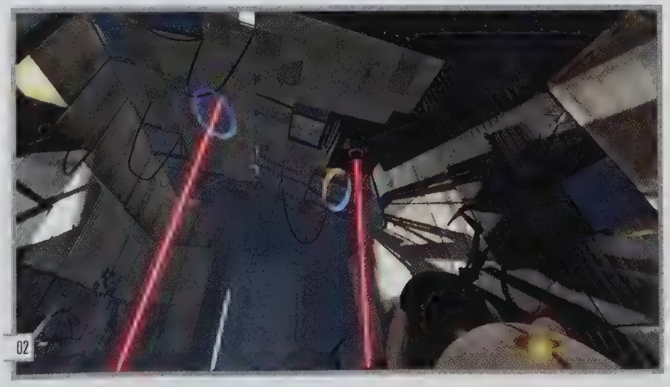
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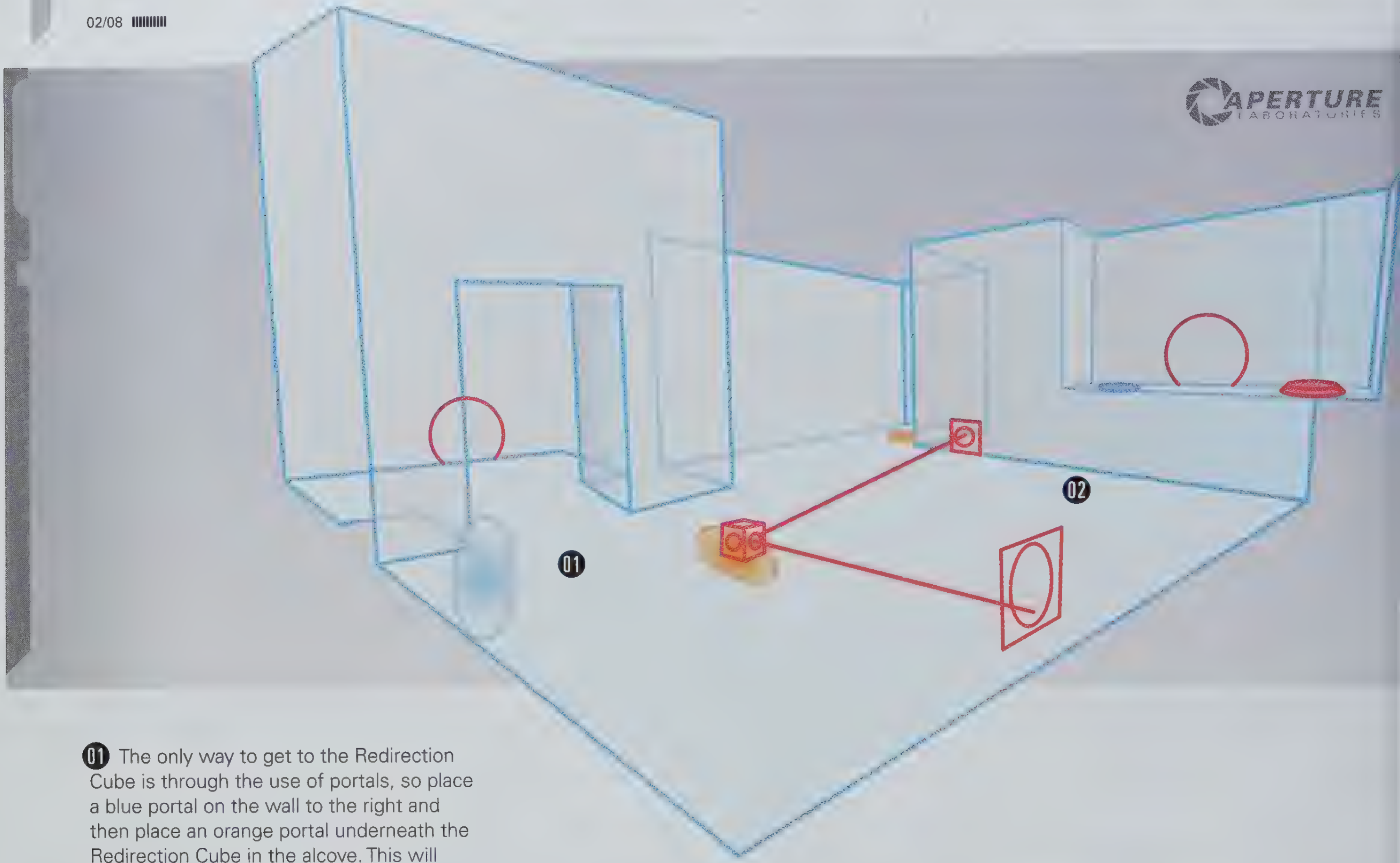
02

02/08

07_014

GLaDOS Test Chamber 02

In this chamber you will be introduced to the Discouragement Redirection Cubes which can be used to reflect beams along almost any horizontal angle. To solve this test you will need acquire the Redirection Cube, and then use it in conjunction with the beam to activate the staircase before placing it onto the button to open the exit.



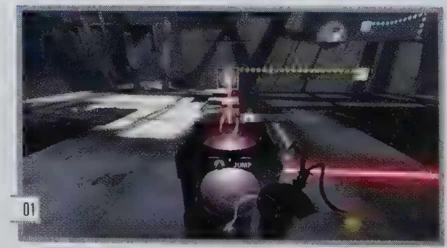
01 The only way to get to the Redirection Cube is through the use of portals, so place a blue portal on the wall to the right and then place an orange portal underneath the Redirection Cube in the alcove. This will cause the Redirection Cube to fall through the portals onto the floor near your blue portal, saving you the need to enter the alcove. Pick up the Redirection Cube and walk forward into the beam with it so that the beam starts getting reflected [→☐ 01]. Angle the Redirection Cube so that the beam is being reflected into the receptacle and then drop the cube on the floor.

02 Jump over the beam and then walk up the stairs so that you are standing near the door. In order to keep the exit door open you will need to have the nearby button depressed, which will require the use of a cube. Place a blue portal on the floor of the ledge you are on and then place an orange one underneath the Redirection Cube so that it falls through them. Pick up the cube after it passes through the portals and then place it onto the button to power the exit door so that you can reach the elevator to the next Test Chamber.

Aperture Information Service

After retrieving the Redirection Cube as usual, it is possible to save some time when completing this test through the clever use of portals. Instead of using the Redirection Cube to reflect the beam into the receptacle, place your orange portal above the blue one that you have on the wall to the right.

Step through the blue portal so that you can see out of the orange one and you should be high enough to see the floor of the ledge near the exit [→☐ 02]. Reposition your orange portal so that it is on the floor near the exit, and then pick up the Redirection Cube and step through your blue portal to quickly reach the ledge, from there you can complete the chamber as usual. Using this method bypasses the need to reflect the beam and allows you to get straight to the exit quickly.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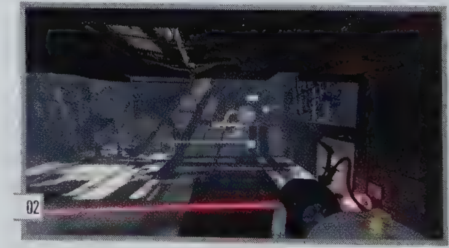

02

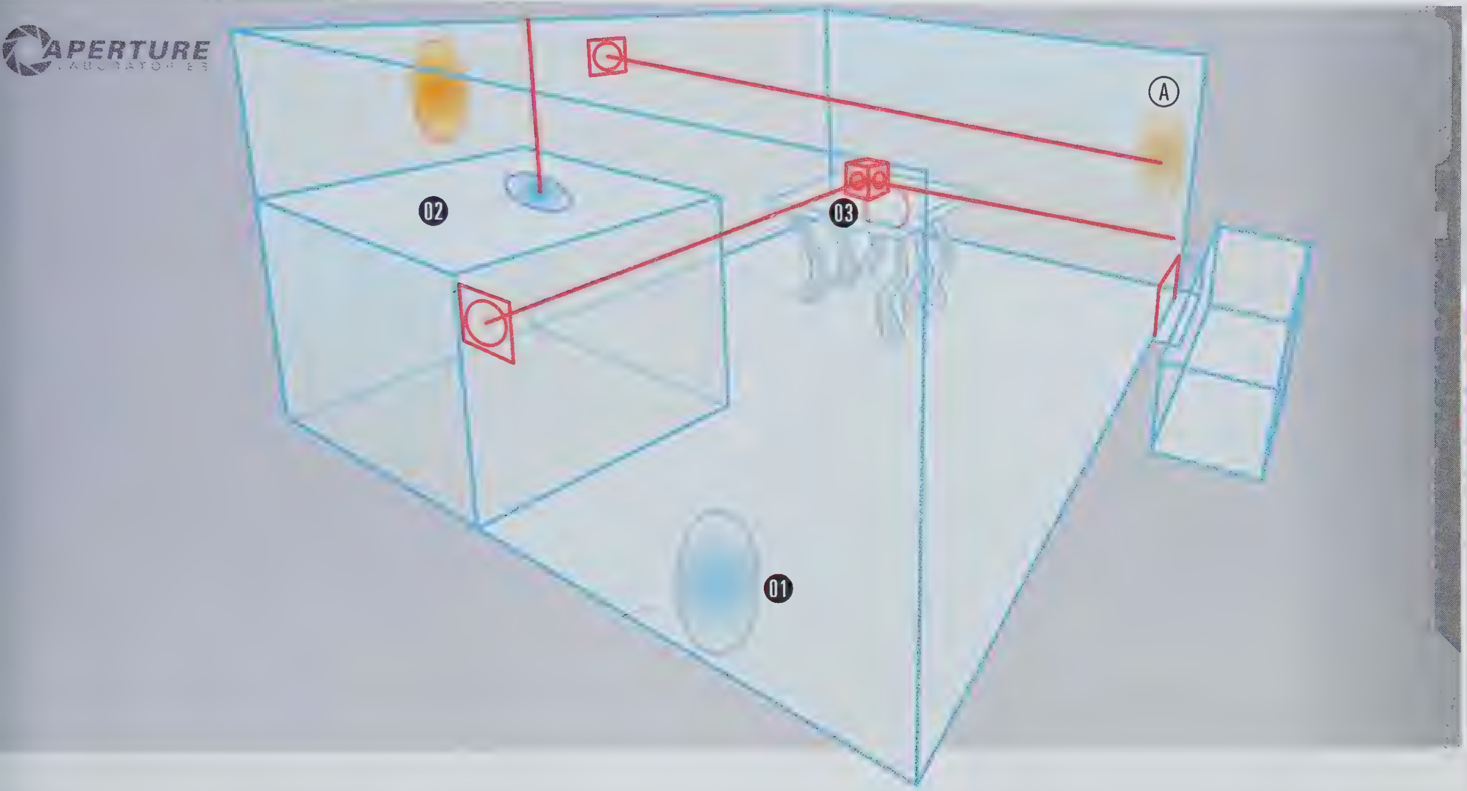
03

GLaDOS Test Chamber 03

The two beams in this chamber need to hit each of the receptacles simultaneously to open the exit. Since there is only one Redirection Cube, you will need to make additional use of portals to accomplish this task and complete the test.

03/08

07_015



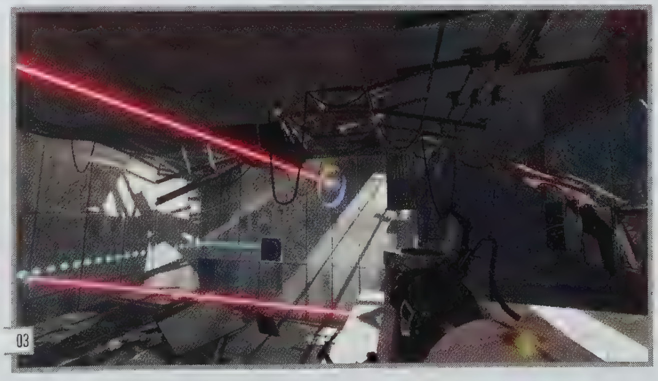
01 There is a small portalable surface on the wall to the left as you enter and you should place the blue portal on it. The orange portal should then be placed on any of the surfaces around the platform with the Redirection Cube on, so that you can walk through them to reach that area.

02 The receptacle for one of the beams is on the ceiling directly above this platform, so you will need to redirect one of the beams upwards into it. Look for the orange glow on the ground so that you know the exact position of the receptacle and then place a blue portal directly onto it. Your orange portal should be placed at Position A, just where the upper of the two lasers is hitting the wall [→☐ 03]. If the portals were correctly positioned, the beam should now be firing directly into the receptacle on the ceiling.

03 Because portals were used to redirect the first beam you are free to use the Redirection Cube on the second beam. Pick up the Redirection Cube and then jump from the platform you are on, down to the platform slightly lower down. When you are on this platform, place the Redirection Cube into the beam and angle it so that the beam is being reflected into the receptacle before dropping the Redirection Cube in place. The exit should now be open so you can head through it and into the elevator.

Aperture Information Service

A room belonging to the shadowy figure known as Rat Man can be found in this chamber, and if you wish to know how to find it, please refer to the Enrichment Completetion Area Chapter.

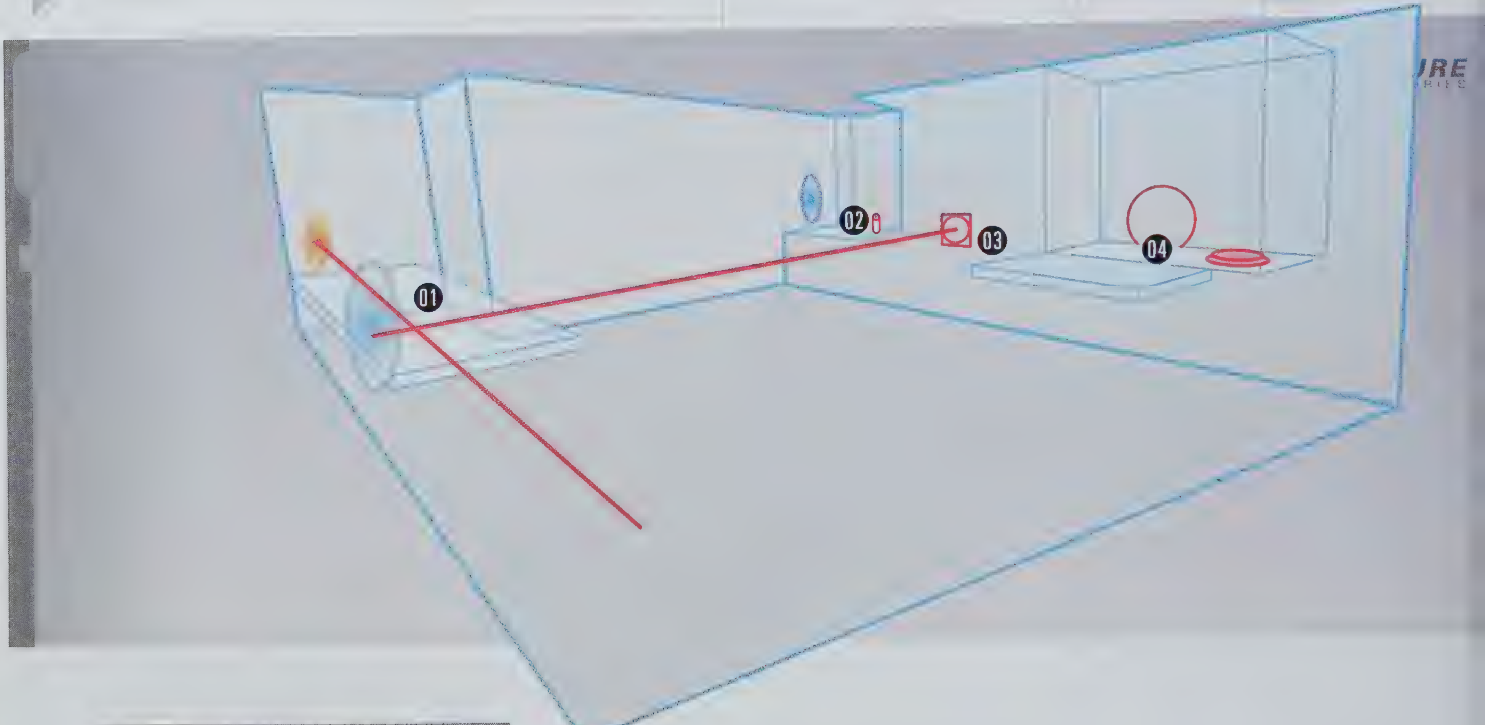

03

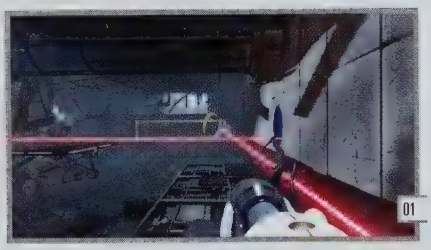
04

07/08

GLaDOS Test Chamber 04

To complete this test you will need to find a way of getting the cube from the alcove onto the button near the exit. To accomplish this you will need to use portals in conjunction with the beam to control the platform above the moat and move it between the two locations.

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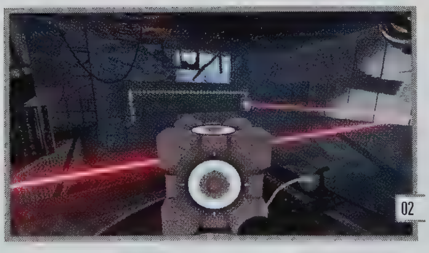
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01 The entrance to this chamber is still blocked off when you first reach the area so you will need to wait for GLaDOS to clear the path for you. To begin with, you will need to move the platform from its current position near the exit, over to the alcove with the Cube Dispenser so that you are able to step onto it. Place a blue portal on the surface that the beam is currently hitting and then place the orange portal on the central panel on the wall to the left of the entrance.

If the portals were positioned correctly, the beam should now be hitting the receptacle and the platform will start to move [→☐ 01]. Once the platform is in line with the alcove, reposition the blue portal onto one of the walls in the alcove so that the beam no longer hits the receptacle, stopping the platform.

02 Step through the orange portal on the wall so that you come out in the alcove and then press the switch so that a cube drops down out of the dispenser. Pick up the cube, and then walk onto the platform with it and drop it in the center of the platform. While standing on the platform, put the blue portal back onto the wall that the beam is hitting so that the platform starts moving again.

03 Make sure you are standing at the back of the platform as it moves towards the exit and that the cube is ahead of your position. If the cube was placed correctly, it should block the beam once the platform starts to pass by it allowing you to walk around the side of the cube and safely avoid the beam [→☐ 02]. Once you are on the other side of the beam, simply pick up the cube and move it out of the way so that the beam can resume hitting the receptacle and the platform will start moving again.

04 Once the platform is in line with the exit, walk off it and onto the ledge and then place the cube onto the button so that the exit door opens and you can continue on to the elevator.

Aperture Information Service

If you are confident in your jumping abilities, you can continue to hold the cube after making the platform move and then simply jump over the beam when you come to it. This method is slightly quicker than using the cube to block the beam, but if you mistime the jump, you may end up being falling to your death in the moat.

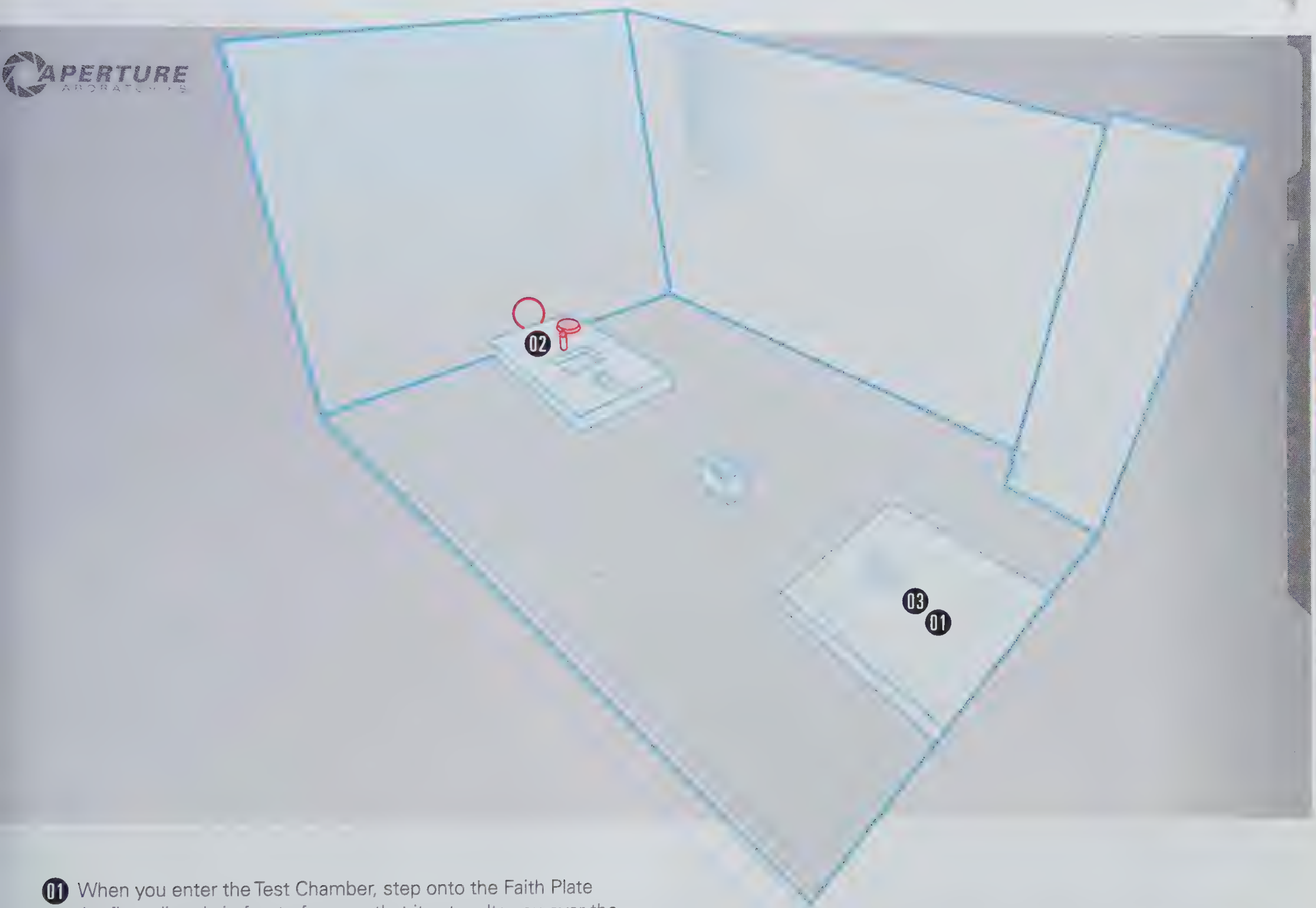
05

05/08

GLaDOS Test Chamber 05

This chamber introduces the Aerial Faith Plate, which is a device used to catapult players or objects over large distances. The goal of this test is to get a cube from the dispenser and place it onto the button near the exit. To accomplish this you will need to make use of both Faith Plates - and some precise timing.

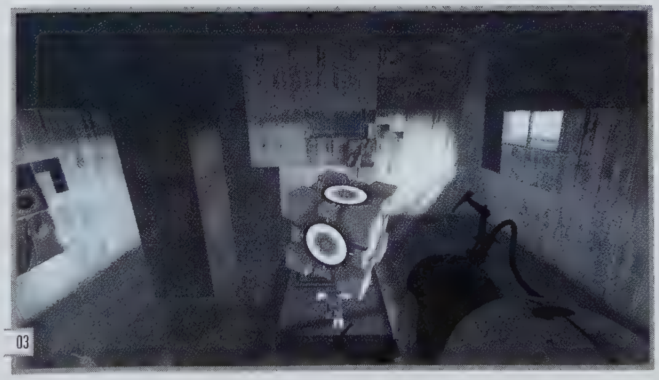
07_017



01 When you enter the Test Chamber, step onto the Faith Plate on the floor directly in front of you so that it catapults you over the moat to the other side of the chamber.

02 Underneath the Cube Dispenser there is another Faith Plate, so if you press the switch to activate the dispenser, the cube will simply start bouncing up and down in place. Timing is the most important factor during this phase of the test, since you will need to catch the bouncing cube in mid-air while you are being catapulted across the room. Step onto the Faith Plate just as the cube is hitting the Faith Plate it is bouncing on, so that is starts rising as you advance towards its position; if timed correctly, you should easily meet the cube in mid flight and grab it automatically [→▢ 03]. If you miss grabbing the cube, or knock it into the moat you can simply press the switch to cause a fresh cube to drop down and try again.

03 Once you have the cube, step onto the Faith Plate near the entrance again so that you get catapulted back over to the exit area, and then you can drop the cube onto the button and walk down to the elevator.


03

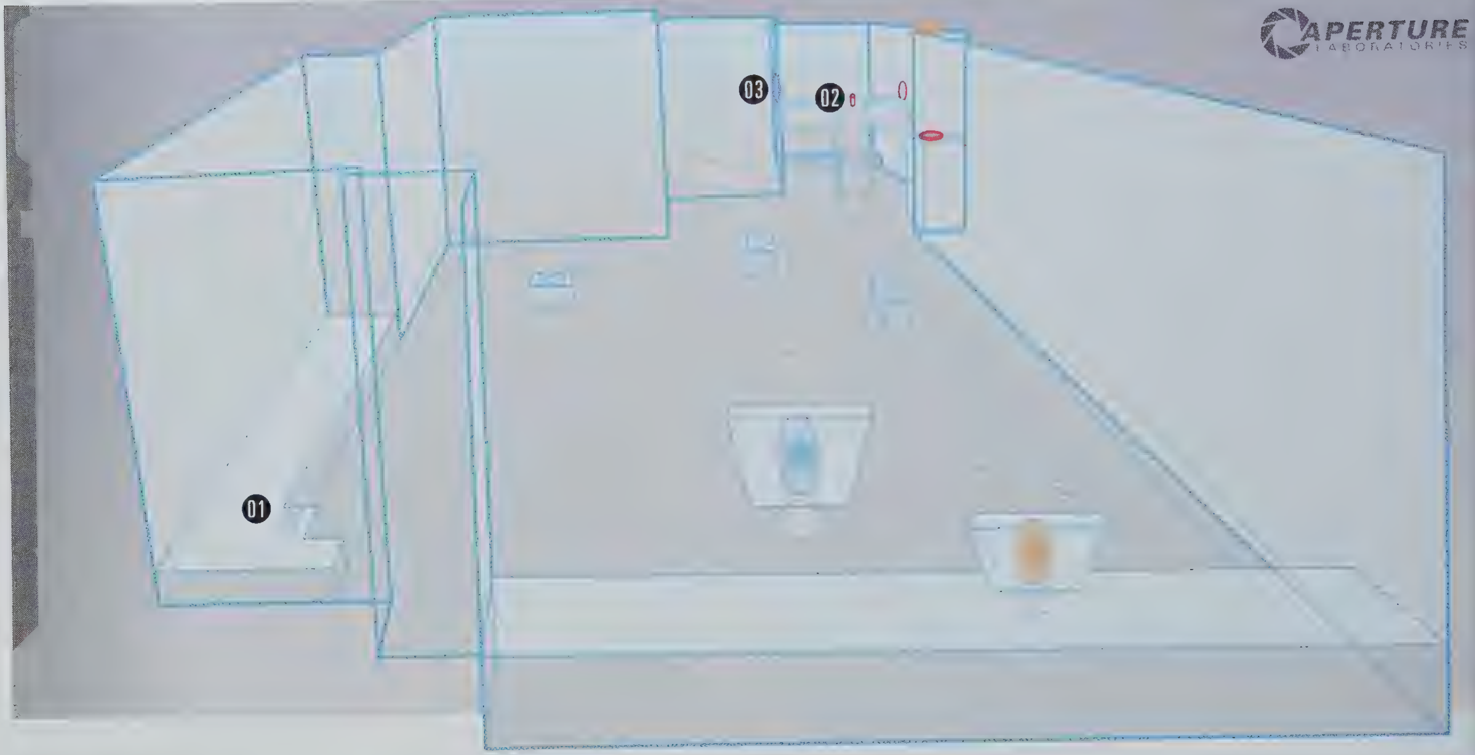
06

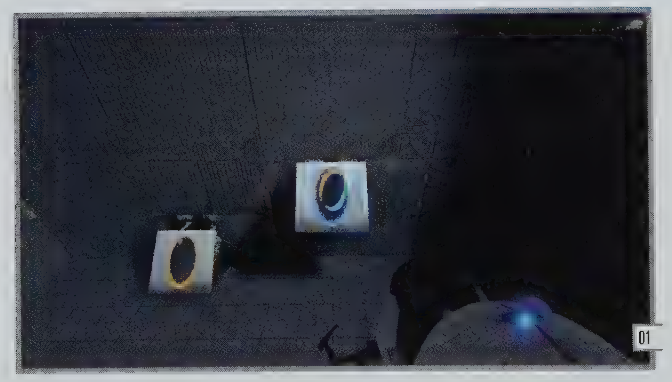
06/08

GLaDOS Test Chamber 06

07_018

The goal of this test is to get a cube from the dispenser above the first Faith Plate, over to the button near the exit on the other side of the moat. The Faith Plates will only take you to a small ledge initially, so you will need to create a fling in order to continue on to the exit.





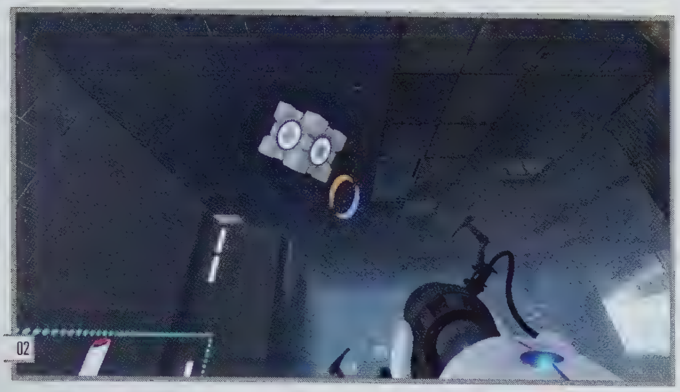
01 Walk all the way to the left of the ledge near the entrance so that you can clearly see both of the angled surfaces; place one portal onto each of them. Now when you step onto the first Faith Plate and start catapulting over the moat you will eventually land in one of your portals and fling out of the other one onto another Faith Plate, which will take you to the bridge near the exit. [→☐ 01]

While you are being catapulted by the Faith Plates you can still move the camera so adjust your view towards the angled surfaces to make sure you land in your portal. If you happen to end up on the ledge with the angled surfaces, you will need to create a portal on the lower of the two and then place another one on the wall near the entrance so that you can begin again.

Aperture Information Service

You can save a small amount of time in this chamber by only placing a portal on the lower of the two angled surfaces. This surface comes into view much sooner as you move along the ledge, so you are able to get back to the Faith Plate quicker and start the catapulting. While you are in mid-flight on the way towards the angled surfaces, you will need to place your second portal onto the upper angled surface to create the fling and continue as normal. For an even more advanced technique, you can try placing portals onto both angled surfaces while you are in mid-flight. This is of course much more difficult, but will save you even more time.

02 Once you land on the bridge near the exit, press the switch to activate the Cube Dispenser; instead of a cube, however, a load of garbage will drop out of it because GLaDOS is still in the process of fixing the chambers. The garbage will follow along the same series of Faith Plates and use the same fling that you used to reach the bridge; make sure that you are not standing in its way when it flies over the bridge since it can easily knock you off.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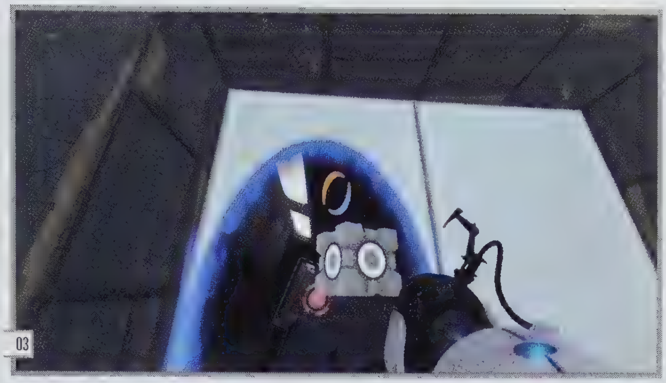

03

If you do get knocked off then you will need to place a portal on the wall of the ledge you land on and then another one on the section of portalable wall up by the bridge. Once you are back on the bridge you will then need to reposition your portals onto the two angles surfaces. Once the garbage is clear, press the switch a second time so that the cube drops down and starts making its way towards the bridge. This time, you will want to stand in the path of the cube and catch it in mid-flight when it gets close to you. [→☐ 02]

Aperture Information Service

While the cube is in mid-flight, you can actually redirect it straight onto the button, by placing one portal on the higher of the two angled surfaces, and then placing the other portal on the ceiling directly above the button. Now when the cube is catapulted into the first portal, it will fly straight down onto the button and open the exit. Using this advanced method, you can bypass the need to catch the cube and drop it through another portal, which will cut down on your time in this chamber.

Aperture Information Service

Amongst the garbage that comes out of the dispenser when you first press the button is an old radio; if you take the radio up to the Rat Man room in this chamber it will begin to play a mysterious message and you will unlock the Final Transmission Achievement/Trophy. For full details on how to get into this Rat Man room, please refer to the Achievement/Trophy Guide in the Extras Chapter.

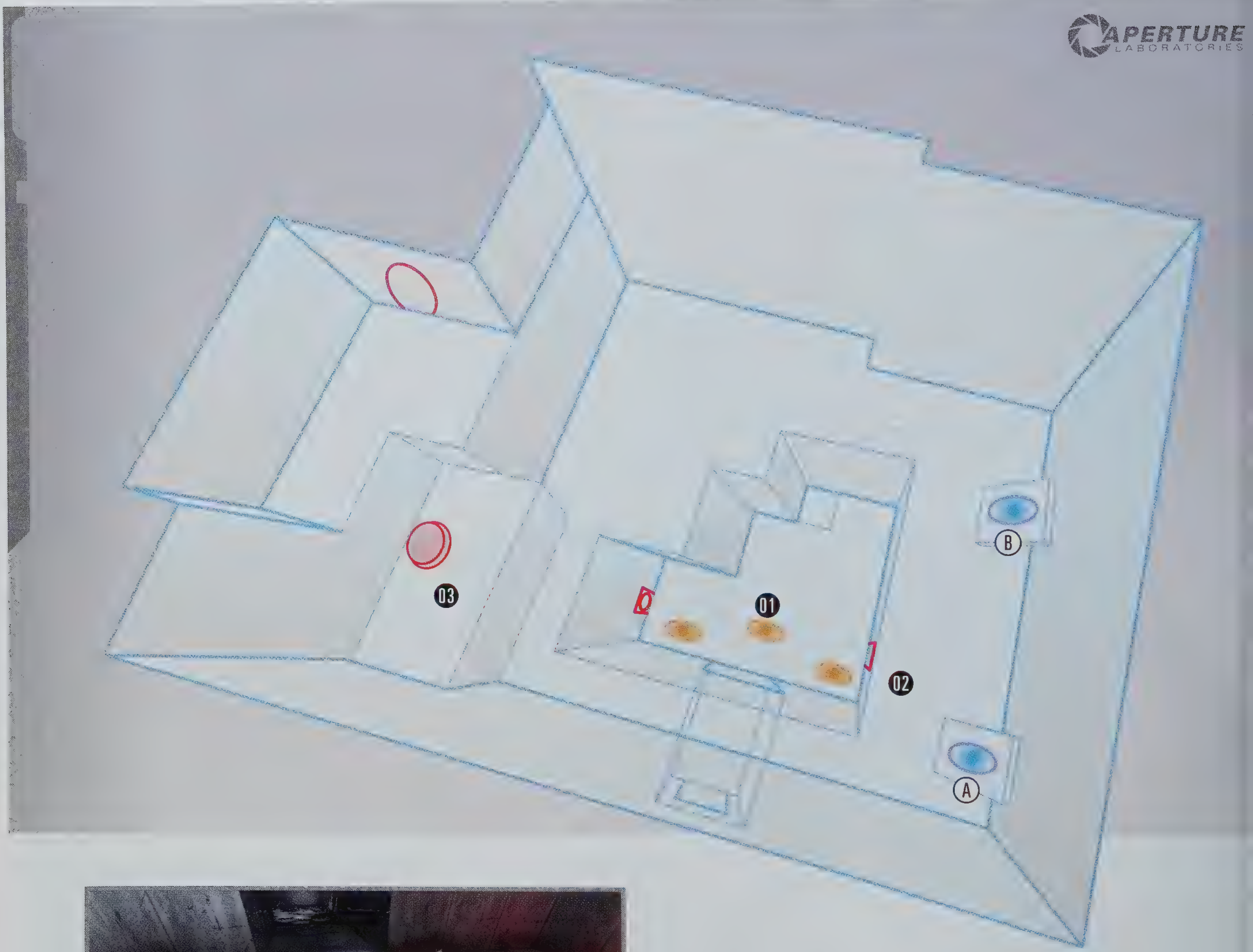
03 Once you have the cube you will need to place a portal on the section of wall by the bridge and then place your second portal on the portalable section of the ceiling directly above the button. With the portals in place, you will be able to drop the cube through the portal on the bridge so that it falls down onto the button below and opens the exit [→☐ 03]. If the cube happens to miss the button, you will need to repeat the earlier steps and get another cube to try again.

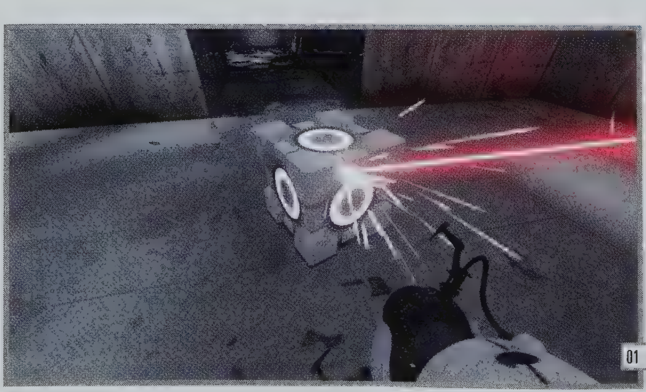
07

GLaDOS Test Chamber 07

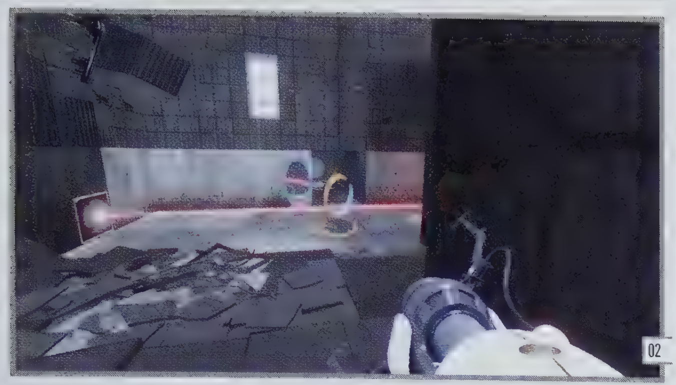
The goal of this test is to find a way out of the pit and get up to the area above and then use the cube to activate a button and create a path to the exit. To accomplish this you will first need to use the beam to control the moving platform and then use portals to create a series of flings for both you and the cube.

07_019





⓿❶ In order to lower the platform you will need to stop the beam from hitting the receptacle, thankfully there is a Companion Cube just on the other side of it. Jump over the beam so that you can reach the Companion Cube and pick it up, only to have GLaDOS accidentally fizzle it instantly. GLaDOS will dispense another Companion Cube for you to pick up, but as soon as you try to block the beam with it she will fizzle this one too.



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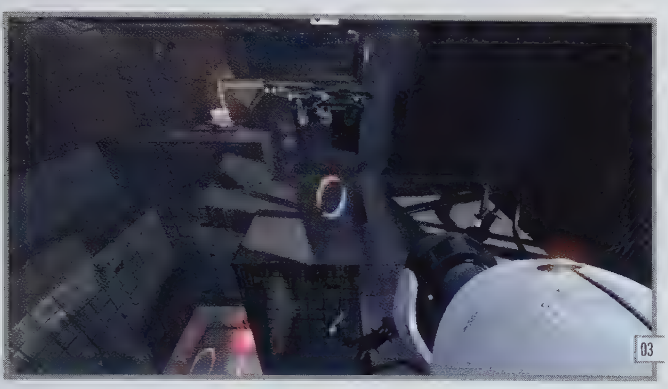


03

A third Companion Cube will then drop down, and this time GLaDOS will not fizzle it so you can pick it up and use it to block the beam [→☐ 01]. Once the beam is blocked, the platform will start to lower and once it reaches the bottom you should walk over and stand on it. Now you will need to make it rise again, which will mean moving the Companion Cube. Place one portal directly beneath the cube, and then place another one on one of the walls so that it falls through them, out of the path of the beam. [→☐ 02]

02 When you reach the upper area, place a portal on one of the angled surfaces and then place another beneath the cube at the bottom of the pit so that it drops through the portals and onto the floor nearby. Now that you have access to the cube, place a portal on the angled surface at Position A and then place another one at the bottom of the pit. Pick up the cube and then drop down into the portal in the pit, so that you fling up to the area with the button.

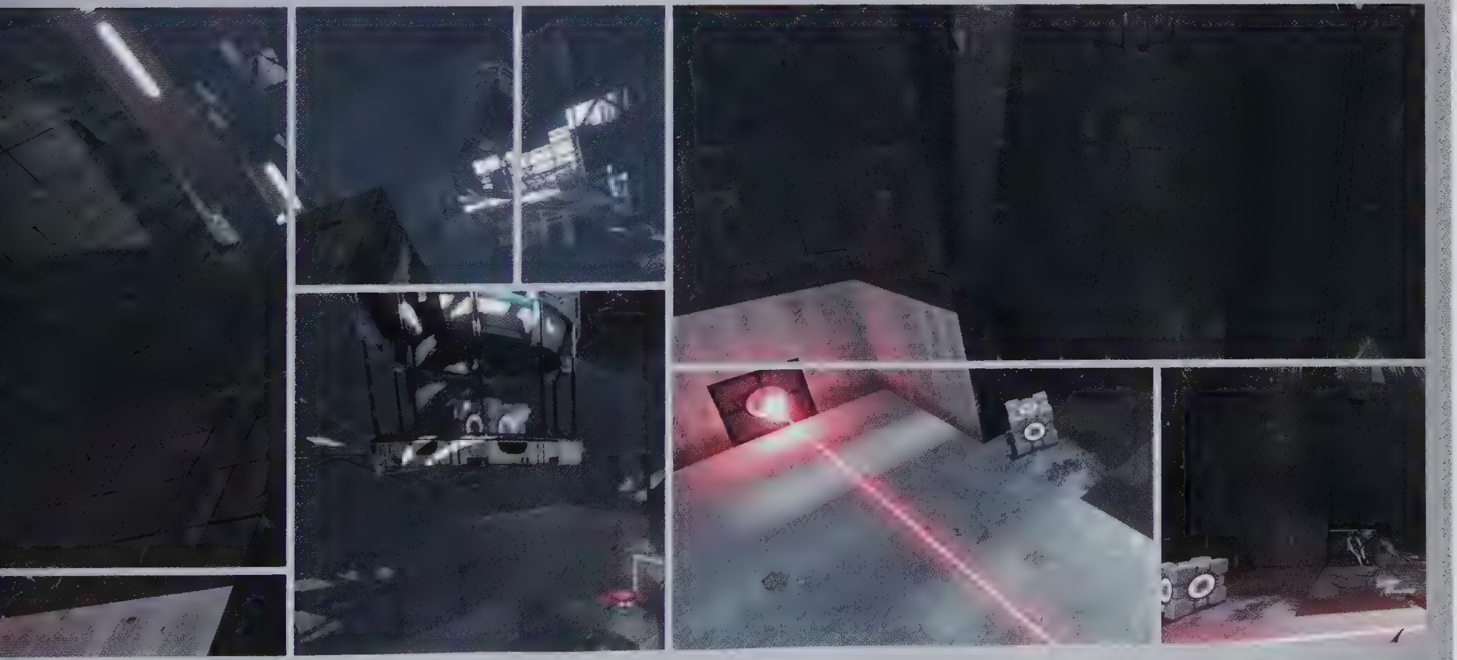
03 Place the cube onto the button so that the platform is extended, creating your landing area. You will then need to place a portal on the angled surface at Position B before creating another portal on this side of the pit and then drop down into that, so that you fling across the room and onto the raised platform [→☐ 03]. Once you are on the platform all you need to do is walk through the exit door and follow the corridor to reach the elevator down to the next chamber.

Aperture Information Service

With some quick reflexes and good timing, you can actually take out the need to do the final fling up to the exit and complete the chamber even faster. Once you are on the ledge with the button, position yourself near the edge that the platform will rise up from. When you are ready, quickly throw the cube onto the button and then jump backwards onto the platform as it rises up. The timing on this technique can be tricky to learn, but once mastered it can be done very quickly and smoothly.

Aperture Information Service

The Material Emancipation Grill by the exit door of this chamber does not work so it is possible to take objects through it and that means you can attempt the Preservation of Mass Achievement/Trophy. When you place the cube on the button to open the exit, place it in such a way so that it is just about triggering the button on the side closest to the exit. Now when you fling up to the exit area you should be able to get close to the ledge, crouch down and pick up the Companion Cube. Carry the Companion Cube all the way down to the elevator, at which point GLaDOS will fizzle it and you will unlock the Achievement/Trophy.



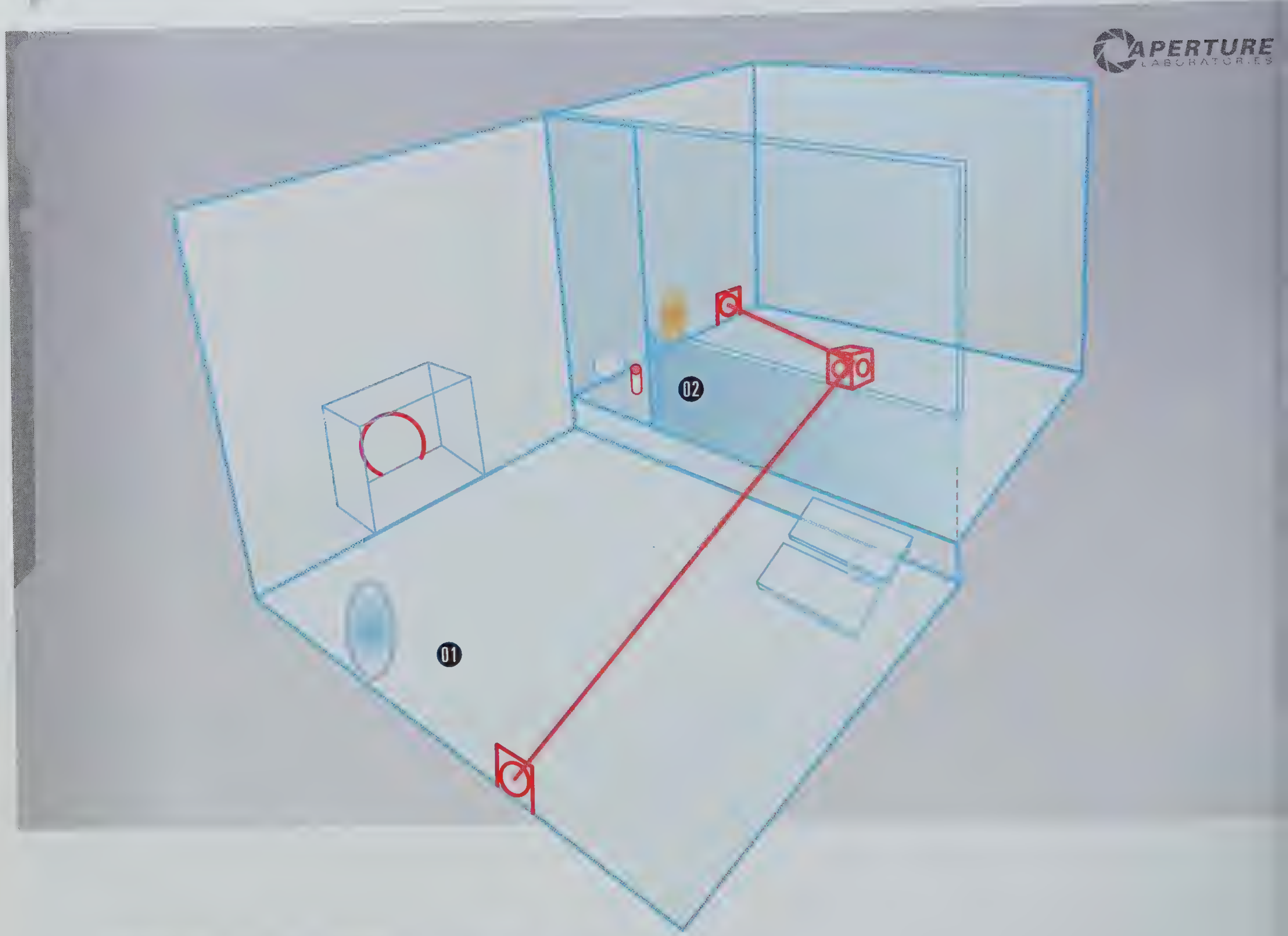
08

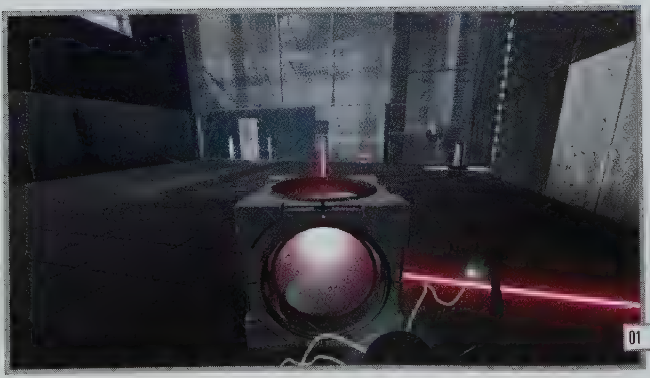
08/08

GLaDOS Test Chamber 08

The goal of this test is to find a way of getting Redirection Cube past the Emancipation Grill, and then use it to reflect the beam into the receptacle to open the exit. To accomplish this you will need to use the small hole in the glass to create portals on either side of the chamber so that you can move through them with the cube.

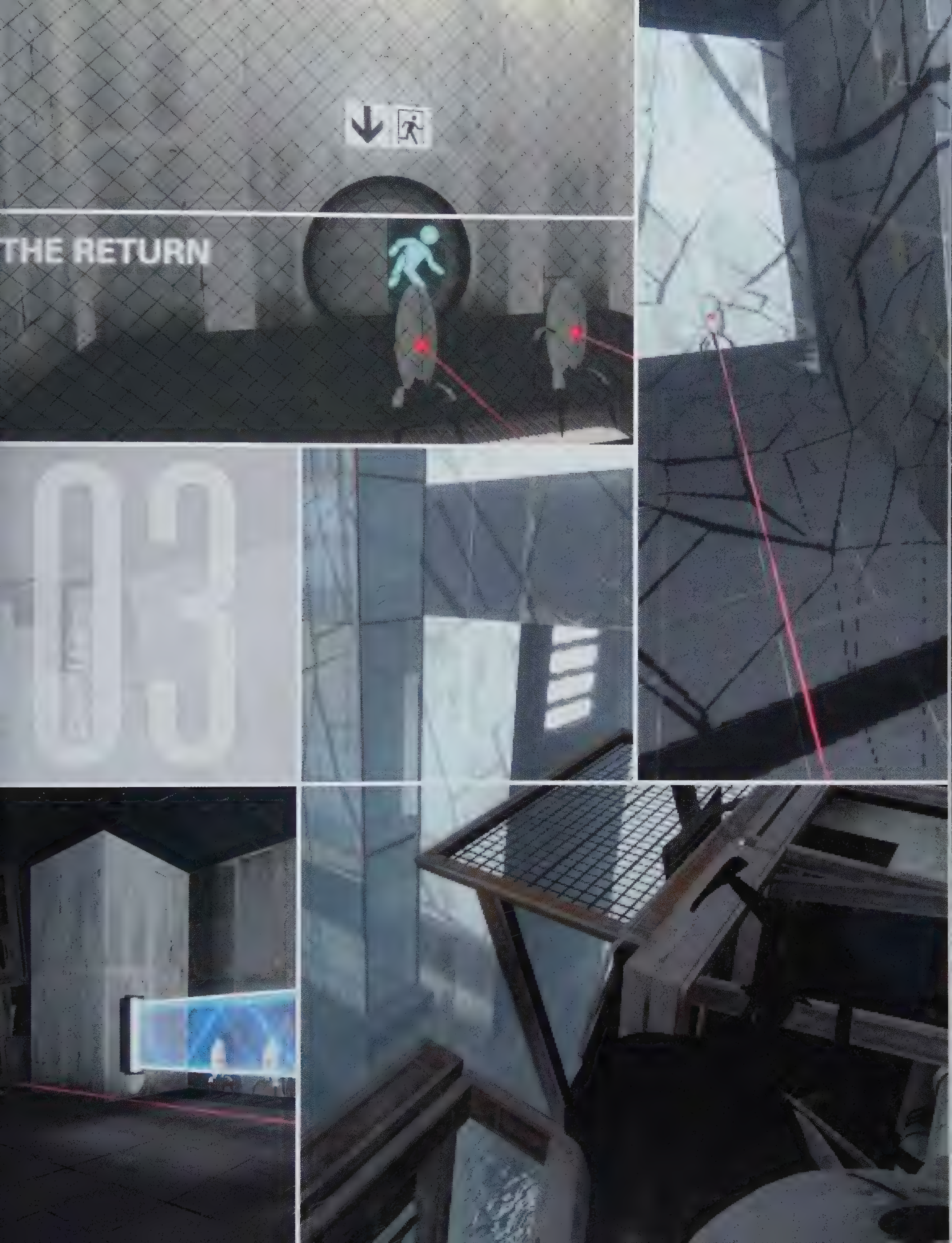
07_020





01 Place a blue portal onto the wall next to the beam receptacle and then aim through the hole in the glass at the other end of the room and place an orange portal on the other side of the Grill.

02 Step through the portals so that you are on the other side of the Emancipation Grill and then press the switch to activate the Cube Dispenser. Step back through the portals to the starting side of the Emancipation Grill and pick up the Redirection Cube. Carry the Redirection Cube with you through the portals again and then use it to reflect the beam into the receptacle so that the exit door opens [→☐ 01]. Step back through the portals one last time and then head down to the elevator through the exit to begin the next chapter.



THE RETURN

03

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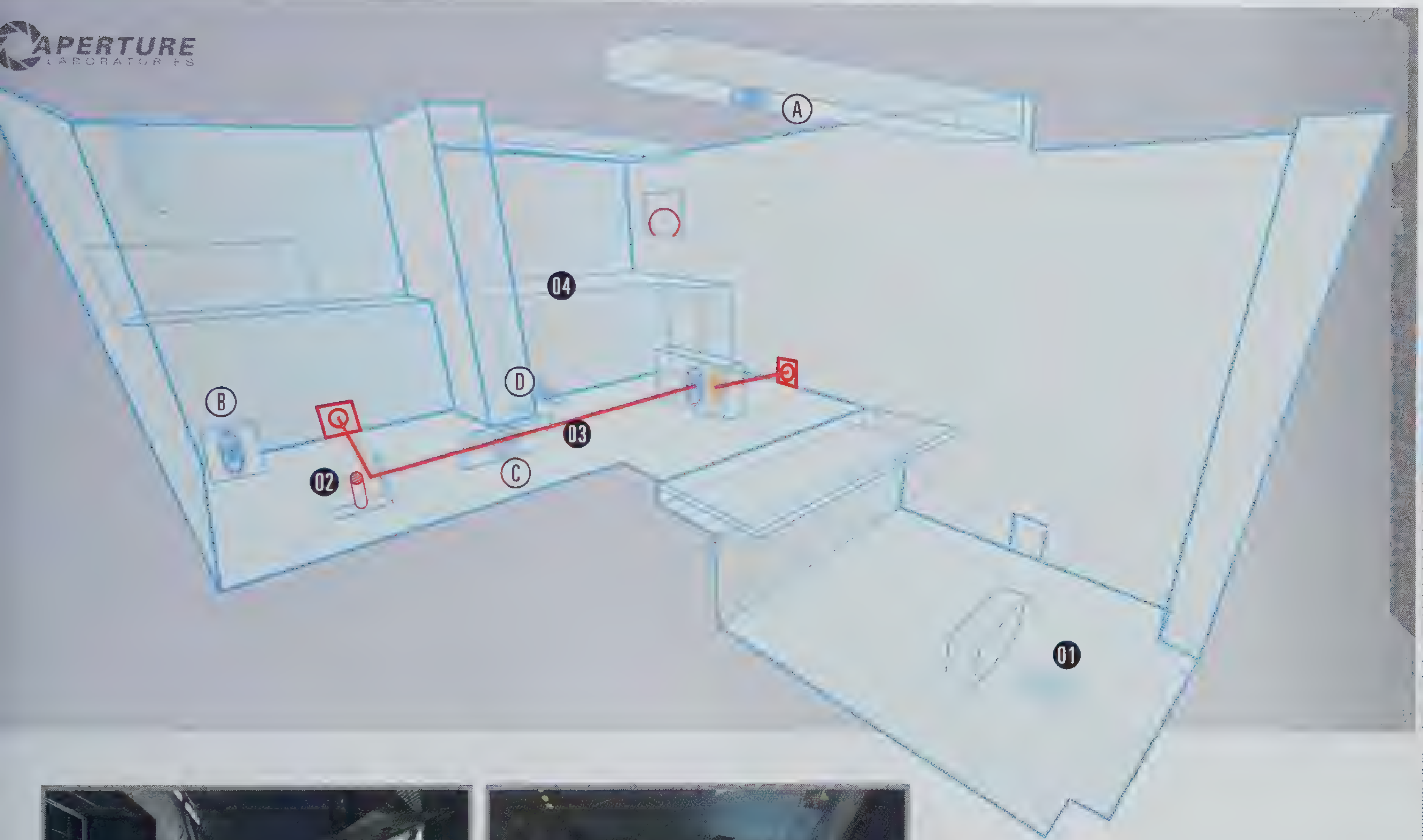
09

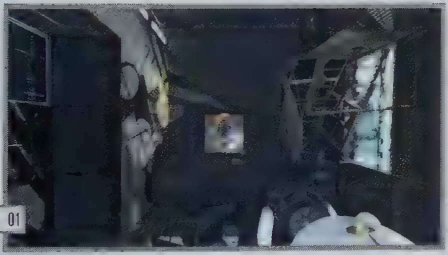
01/09

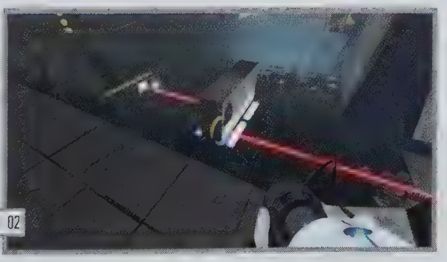
GLaDOS Test Chamber 09

The goal of this test is to first find a way onto the upper section of the chamber, and then find a way to get the Thermal Discouragement Beam into the receptacle on the other side of a free standing wall. To accomplish this you will need to use the Faith Plate to generate momentum and create flings out of the various angled surfaces to reach the different areas of the chamber.

07_021







01 Place a blue portal on the section of the ceiling at Position A and then step onto the Faith Plate. It appears that the Faith Plate is not working correctly, however, so wait for GLaDOS to repair it and then step onto it a second time. It will still not catapult you high enough, so wait for GLaDOS to recalibrate it to the correct weight settings and then try again. After failing to get the settings correct for a third time, GLaDOS will finally lower the ceiling above the Faith Plate. Now you can place an orange portal on the ceiling above the Faith Plate and then step onto it to get catapulted up into the portal above and out of the other one to reach the next part of the chamber. [→▢ 01]

02 Reposition the blue portal from its current location to the angled surface at Position B and then jump through it so that you land on the Faith Plate and get catapulted back up through the portals and onto the ledge with the switch. Press the switch so that the Redirection Cube drops down onto the ledge on the opposite side of the room and then drop back down and place the blue portal onto the angled surface at Position C. Jump through the blue portal so that you again land on the Faith Plate below, only this time when you get catapulted back up you will be flung across to the ledge with the Redirection Cube.

03 Pick up the Redirection Cube and then drop down to the floor below where the beam is and use the Cube to reflect the laser onto the free standing wall that is blocking the beam's path to the receptacle. Once the beam is angled correctly, place your blue portal onto the angled surface at Position D and then jump through it so that the Faith Plate catapults you back up and onto the section of floor near the exit.

04 From this elevated position, you will need to place a portal on either side of the free standing wall below so that the beam can pass through them and into the receptacle [→▢ 02]. You may need to reposition the portals slightly until you get the correct placement to allow the beam to pass through them correctly, since their position depends on where the Redirection Cube was placed initially. Once the beam is correctly aligned, the exit door will open and you can walk down to the elevator.

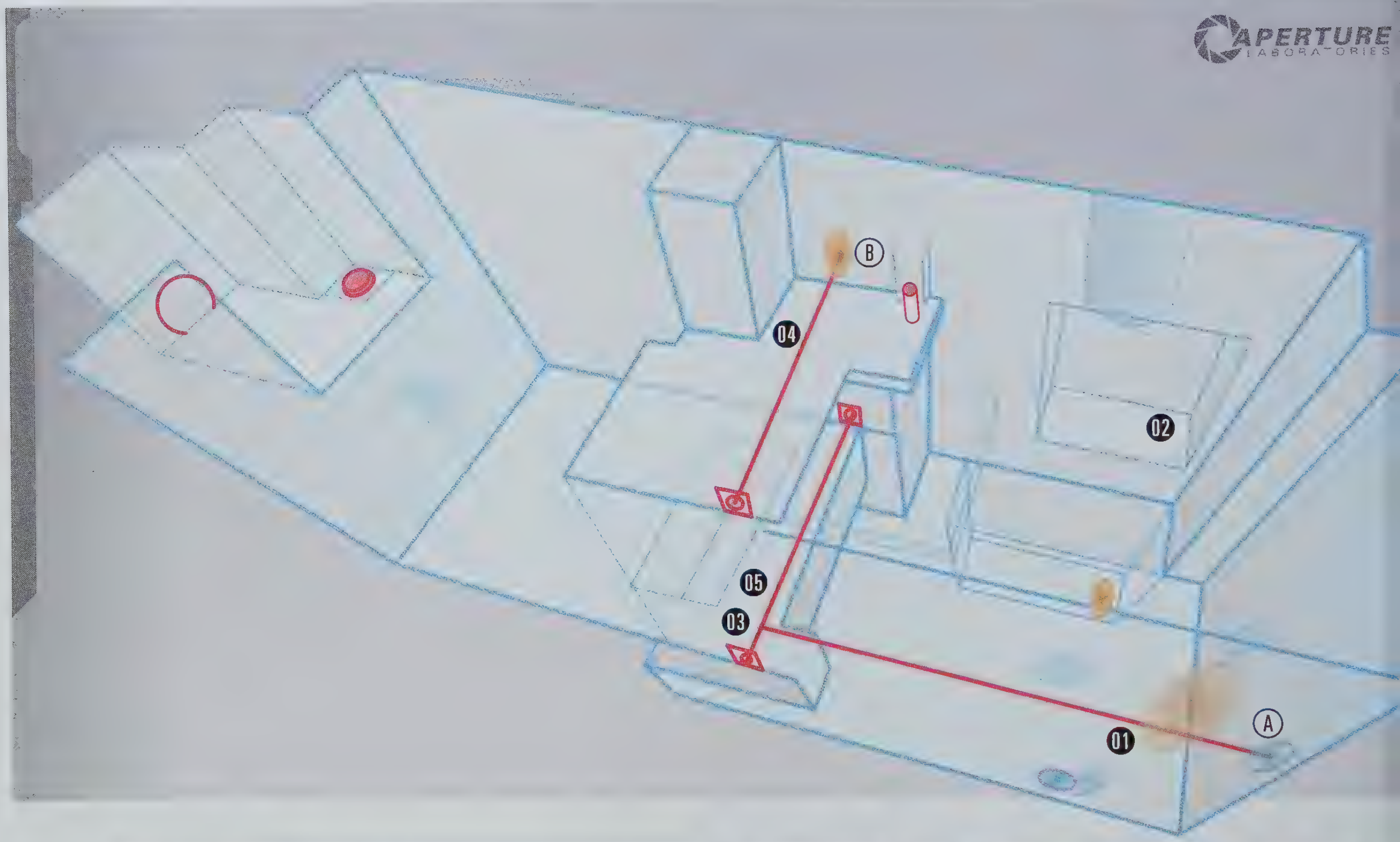
10

02/09

GLaDOS Test Chamber 10

07_022

The goal of this Test Chamber, to get a Weighted Cube onto a button, may sound relatively simple, but the steps required to get it there are anything but. You will first need to find a way to fling across the pit to the cube before you can even begin trying to get it to the exit. At the front of each floor there is also a barrier blocking the path across to the next Faith Plate and the only means of controlling them is through the use of the Thermal Discouragement Beam. Both barriers need to be lowered simultaneously to create the path to the exit and doing this will require the usage of both cubes and portals.



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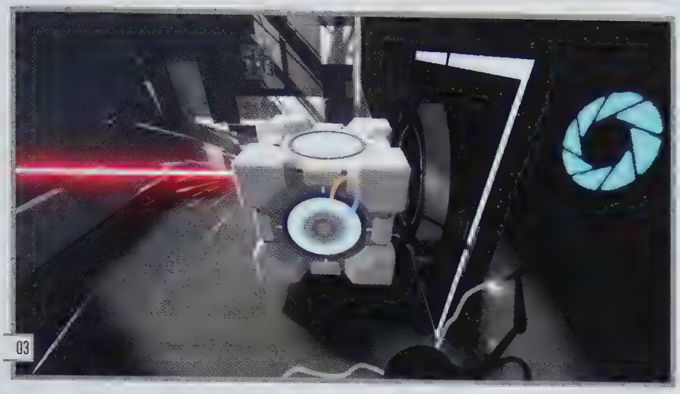
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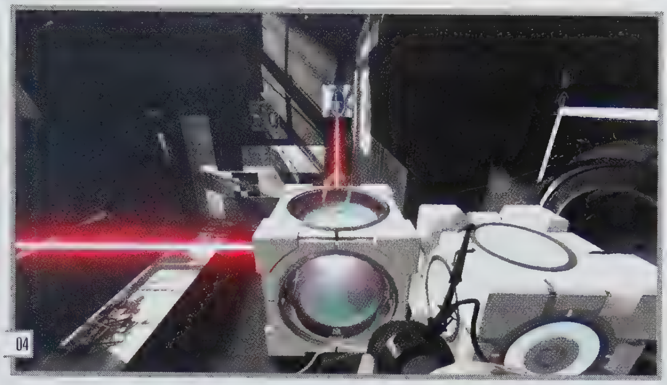

04

01 To acquire the Weighted Cube you will need to generate enough momentum to make it across the pit and since you cannot use the Faith Plates for this, you will need to improvise. Place a blue portal as high up as possible on the wall directly to the left of the entrance and then place an orange portal on the floor beneath it [→☐ 01]. Step into the portal on the floor so that you drop out of the one up high, generating enough momentum so when you pass back through the portal on the floor you fling across the room onto the ledge with the Weighted Cube.

02 Before picking up the Weighted Cube, place a blue portal on the wall next to the entrance and then place an orange portal at the bottom of the pit you just crossed. Pick up the Weighted Cube and then drop down through the orange portal at the bottom of the pit so that you come out near the entrance [→☐ 02]. Step onto the Faith Plate while carrying the Weighted Cube so that you are catapulted up to the second floor.

03 Place the Weighted Cube on the ground just in front of the beam receptacle to block its path and lower the barrier on this floor [→☐ 03]. Now that this barrier is down, you will be able to continue further up the series of Faith Plates. Before dropping down, however, place your blue portal on the small portalable section of wall at Position A, and then go down and step on the Faith Plate again.

04 This time when you step on the Faith Plate at ground level, you will be catapulted onto the next Faith Plate by the second floor and up to the third floor. On this floor is another barrier that you need to lower and this one is triggered by redirecting a beam into the receptacle close to the barrier.

Place a portal on the small section of wall at Position B, and then press the switch near the front edge of this floor to cause a Redirection Cube to drop out of the dispenser on the ceiling. The Redirection Cube will drop straight down onto the Faith Plate on the ground floor and follow the same path up to the third floor that you just used; wait for it to reach your position and then pick it up and drop back down to the second floor with it.

05 Place the Redirection Cube to the side of the Weighted Cube so that the beam gets reflected into the portal at Position A, and out of the one at Position B, into the receptacle on the third floor [→☐ 04]. Now that both of the barriers are out of the way, the path to the exit is clear so pick up the Weighted Cube and drop back down to the ground floor. Step onto the first Faith Plate and you will be catapulted up and ricocheted off the subsequent Faith Plates higher up until you land safely near the exit. Once you reach that location, place the Weighted Cube onto the button and then go through the exit and into the elevator.

Aperture Information Service

If you manage to complete this Test Chamber in less than 60 seconds, you will unlock the Overclocker Achievement/Trophy. For full details on how to accomplish this feat please refer to the Achievement/Trophy Guide in the Enrichment Completion Area Chapter.

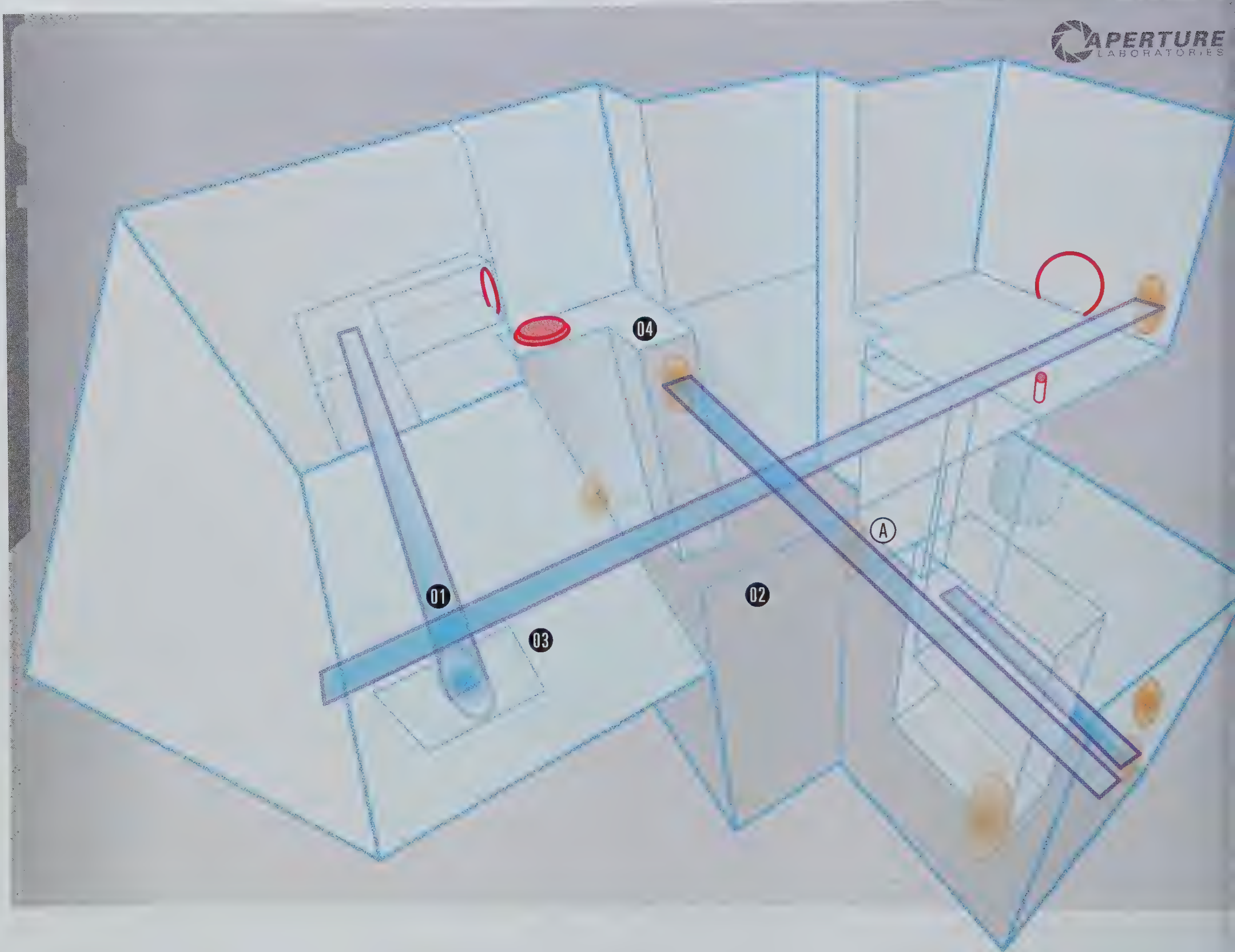
11

03/09

GLaDOS Test Chamber 11

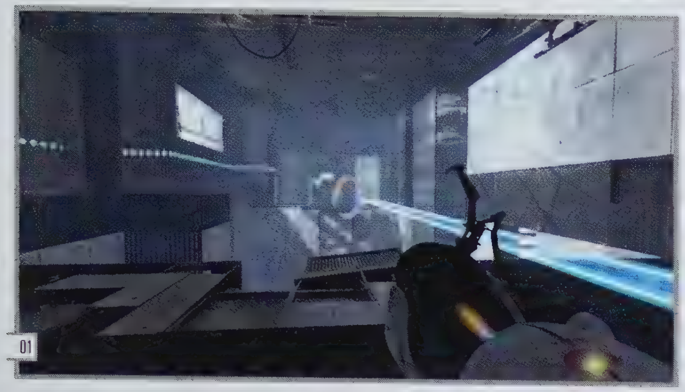
07_023

Test chamber 11 introduces you to Hard Light Bridges. These Light Bridges can be used to create stable paths that you can walk across and are primarily used for crossing safely over pits or moats. The goal of this test is for you to use portals to extend the Light Bridges across different parts of the moat, creating a pathway first to the Cube Dispenser to acquire a cube, and then to the button you need to place it on.



01 Follow the corridor around to the left and then place a blue portal on the protruding section of wall that the Light Bridge is currently hitting. Place an orange portal on the portalable section of wall to the right of the exit so that a Light Bridge is extended across the moat [→☐ 01]. Instead of crossing the Light Bridge, however, step through the blue portal so that you come out of the orange portal on the other side of the moat. Press the nearby switch to activate the Cube Dispenser, but unlike normal dispensers, this one will continue to drop cubes intermittently, rather than just dispensing one.

02 Follow the Light Bridge you created out across the moat until you are in line with the section of wall protruding from entrance to the area with the button. This narrow section of wall has a portalable surface on it, so reposition your orange portal onto that surface, so that you drop down onto a new Light Bridge [→☐ 02]. Follow the Light Bridge into the alcove on the opposite side of the moat to the button and then look to the left when you come to the end of it to find another portalable surface slightly lower down.



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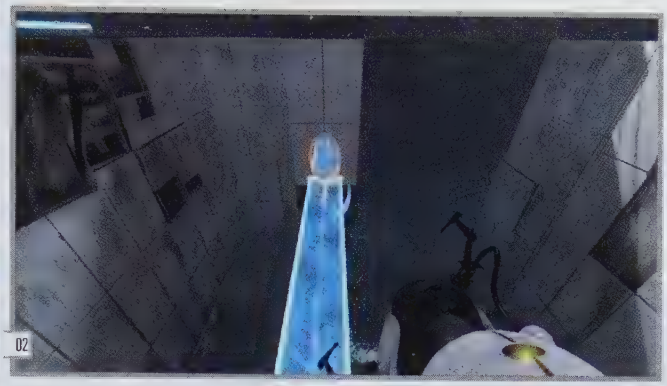


02

Make sure you are aligned with this surface and then reposition the orange portal onto it so that you drop down onto the Light Bridge that is created below. Walk along this Light Bridge until you are in line with the next portalable surface on the right-hand wall and then reposition the orange portal onto it to create a Light Bridge that runs beneath the Cube Dispenser. Move along the Light Bridge until you are beneath the Cube Dispenser, and then catch one of the cubes as it is falling and take it back through the orange portal to the starting area.

03 To get the Weighted Cube over to the button you will need to place the orange portal at Position A so that the Light Bridge extends across the moat and into the alcove with the button. Step through the blue portal with the Weighted Cube and walk along the Light Bridge until you can safely drop down to the area with the button and then place the cube onto the button.

Aperture Information Service

It is possible to reach the area with the button slightly faster by placing the orange portal onto the ceiling near the protruding wall. From there you can step through the blue portal and angle your drop so that you land on the floor near the button. Using this method, however, does bring with it the inherent risks of falling into the moat below if you do not correctly align your fall.

04 After placing the cube on the button, walk out onto the protruding wall, then look to the right, and place the orange portal onto an area of the wall below so that you can drop down onto the bridge and walk through it. Now that you are back at the starting area, all you have to do is place the orange portal back on the section of wall to the right of the exit and then step through the blue portal to reach the exit on the other side of the moat.

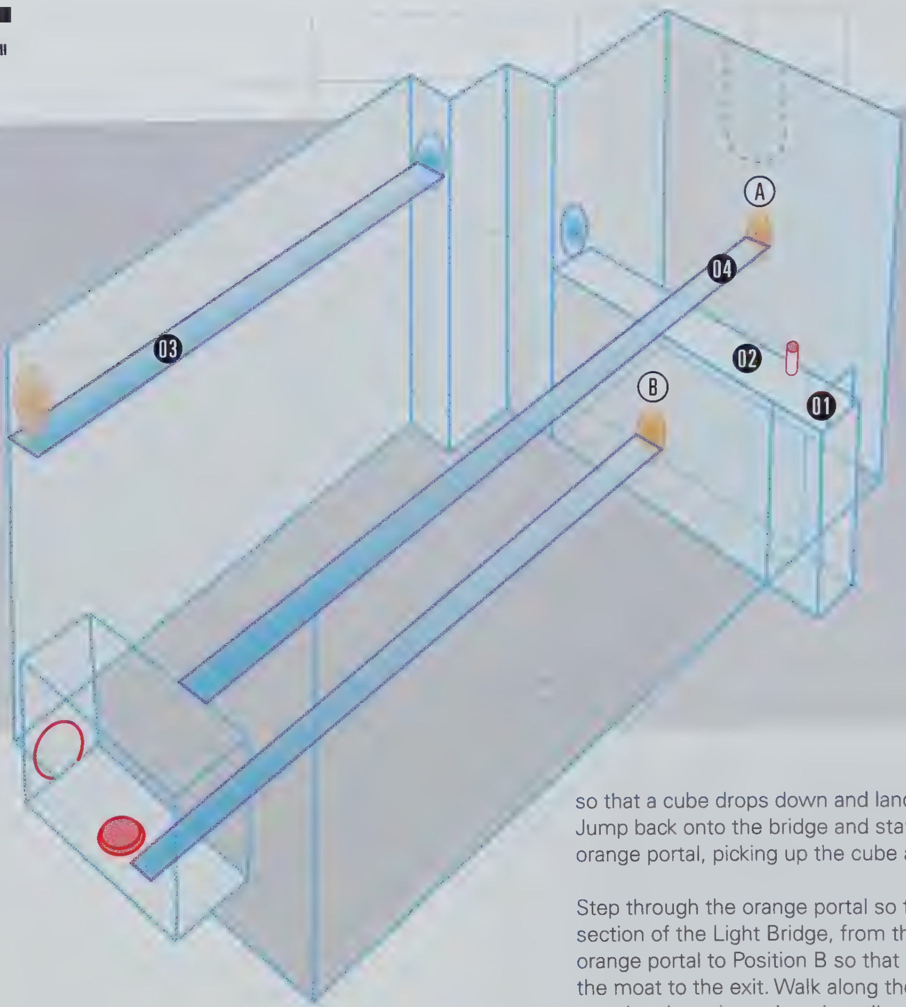
12

04/09

07_024

GLaDOS Test Chamber 12

This test expands on the principles of the previous Test Chamber. You will need to use portals to extend Light Bridges over areas of the moat to create a safe area for the cube to land on and then get the cube to the button near the exit.



01 The door leading into Test Chamber 12 will start to malfunction when you approach it so you will need to wait for GLaDOS to repair it. While you are waiting, Wheatley will appear on the other side of a window to the right and inform you that he has a plan to escape shortly. Once GLaDOS has repaired the door, enter the chamber to begin testing again.

02 Start by placing a blue portal on the wall opposite the entrance, and then place the orange one on the small portalable section of wall that is directly above the point where the Light Bridge is being generated. [→☐ 01]

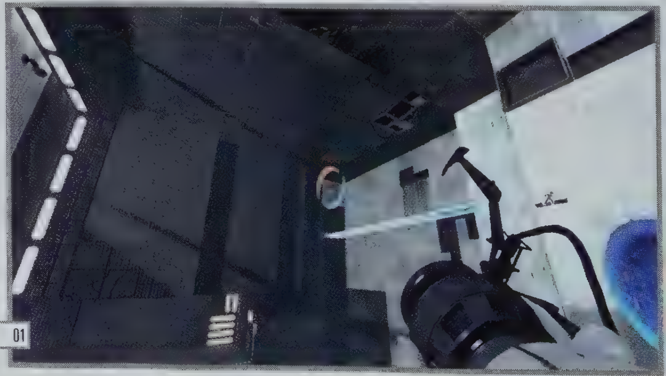
03 Step through the blue portal so that you drop down onto the Light Bridge and then reposition the blue portal so that it is on the wall directly opposite the Light Bridge generator. Reposition the orange portal so that it is in the middle of the portalable section of wall made up of smaller squares at Position A, to create Light Bridge that runs underneath the Cube Dispenser.

04 Step through the blue portal and follow the bridge back to the starting area where the switch is located and then press the switch so that a cube drops down and lands safely on the Light Bridge. Jump back onto the bridge and start walking back towards the orange portal, picking up the cube as you go.

Step through the orange portal so that you are back on the original section of the Light Bridge, from there you should reposition the orange portal to Position B so that the Light Bridge extends across the moat to the exit. Walk along the Light Bridge, through the blue portal and continue along it until you can safely drop down onto the area with the button and then place the cube onto the button and go through the exit to the next chamber.

Aperture Information Service

Another of the infamous Rat Man rooms is located in this chamber, to discover its hidden location please refer to the Enrichment Completion Area Chapter.


01

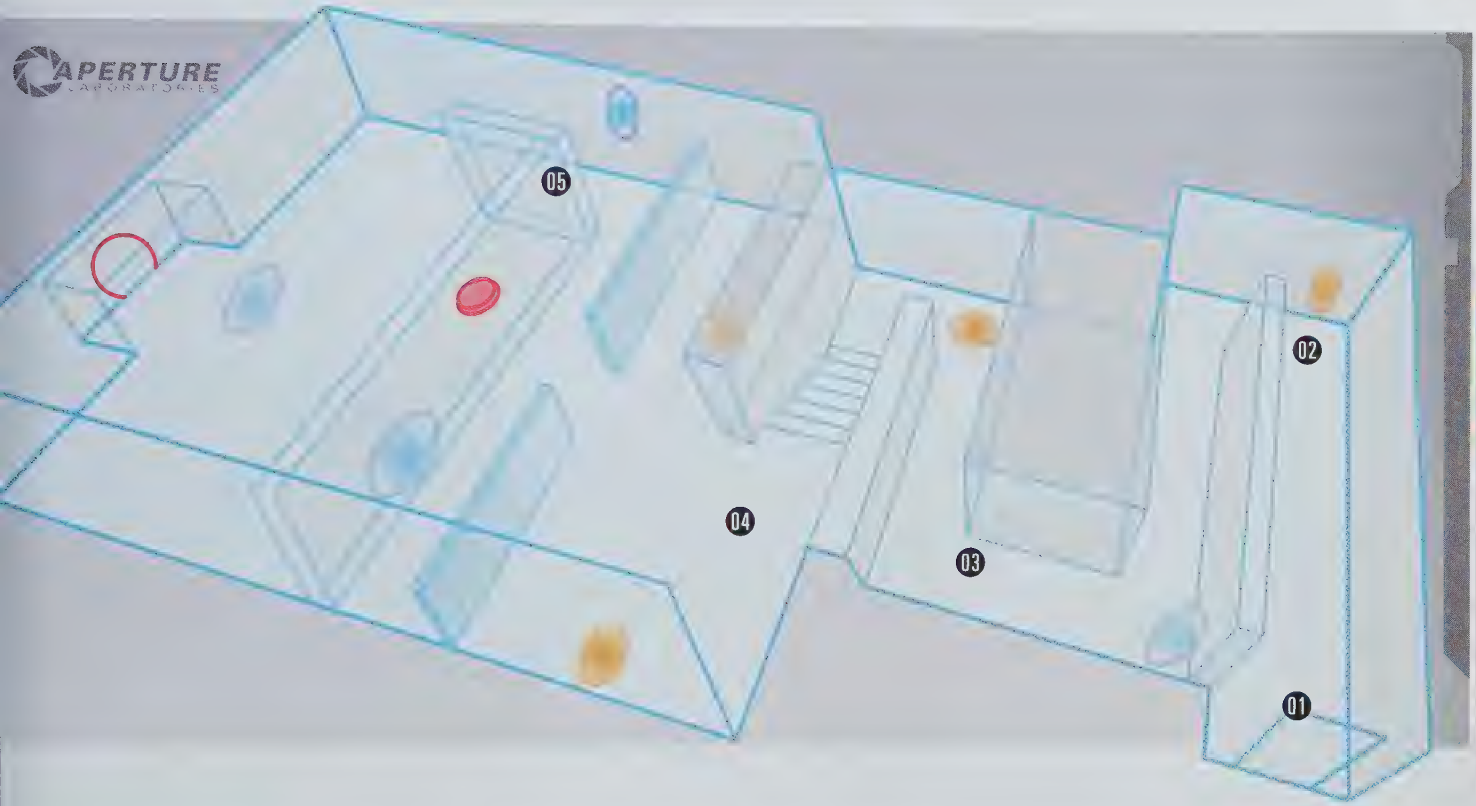
13

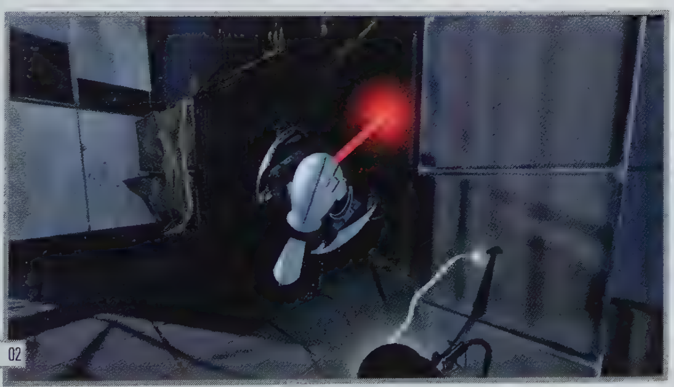
05/09

GLaDOS Test Chamber 13

In Test Chamber 13 GLaDOS introduces deadly turrets into the testing process and these machines can very quickly cut down anyone who gets caught in their tracking beam. The goal of this test is to find a way of safely navigating through the turret-filled chamber, while also acquiring one of the cubes and using it to activate a button. To accomplish this you will place portals in advantageous positions to literally, get the drop on the turrets.

07_025

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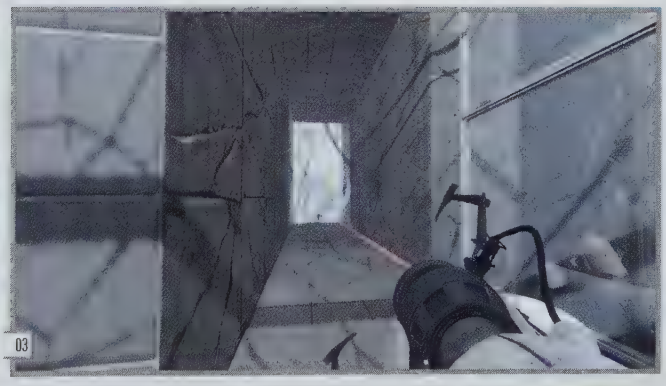
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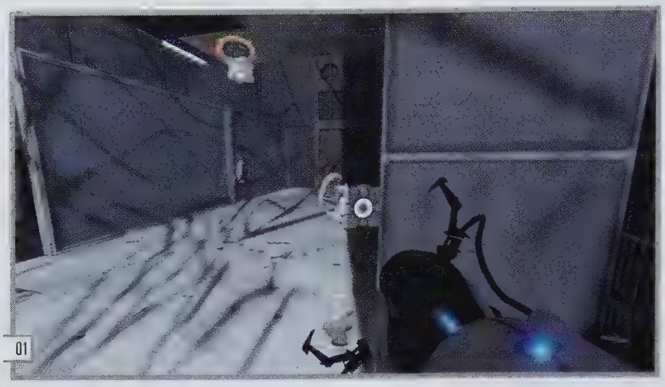
01 When you first enter the chamber, there will be a turret facing away from you; turrets' main weaknesses are that they are very easy to topple over, which will then cause them to malfunction and shut down. Walk over to the turret, pick it up and then drop it again so that it falls over and malfunctions. [→☐ 02]

02 As you round the corner to the left, you will start to see the tracking beam of another turret; quickly peek around the corner and place a blue portal behind the next turret, and then step back to safety and place the orange portal on one of the walls out of the turrets line of sight [→☐ 03]. Step through the portal so that you appear behind the turret and then knock this one over.

03 Continue along the corridor for a short distance until you see the tracking beam of another turret; quickly look around the corner and place the orange portal on the floor below the turret, causing it to



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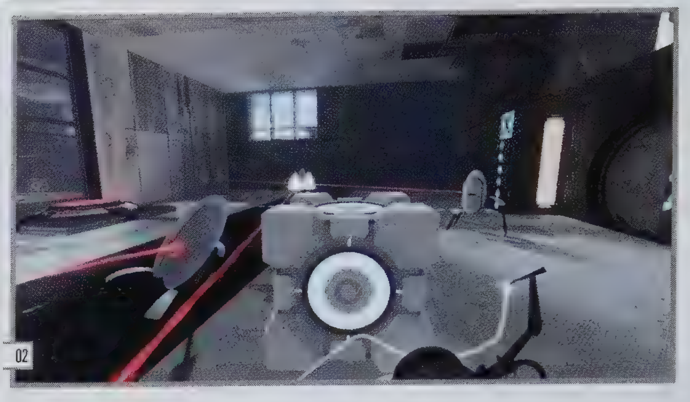


02

fall out of the blue portal far away and malfunction. Follow the corridor along again now that it is safe to proceed and then go up the stairs to the room at the end.

04 In this room there are two turrets behind panels of glass that are blocking your path to the exit. Along with the turrets, however, are some Weighted Cubes that can be used to your advantage. Place a blue portal on the ceiling above one of the turrets, and then place an orange portal under one of the cubes so that it drops down and knocks over the turret [→□ 01]. The same thing can then be done to knock over the second turret using one of the remaining cubes, allowing you to continue safely.

05 There are three turrets in the final room before the exit, so stepping out into that area straight away would be suicide. Peek out from behind the wall slightly so that you can just about see the turret that is closest to the exit door; the floor beneath this turret is portalable so all you need to do is place a blue portal beneath it so that it falls through and malfunctions.

The remaining two turrets are in single file so if you pick up one of the Weighted Cubes you can walk out into the room and use the cube to block the shots from both turrets. Walk into both of the turrets with the cube and you will easily knock them over and render them useless. When both of the final turrets have been subdued, place the cube onto the button so that the exit door opens. The path to the elevator on the other side of the door has been destroyed, so in order to continue you will need to drop down to the floor below and follow the catwalks through a series of doors.

Aperture Information Service

Instead of using a portal underneath the turret near the exit, it is possible to use the cube to block the shots of all three turrets while using it to knock them over. Angle yourself so that when you enter the final room the cube is blocking the bullets of the closest turret and the one by the exit. Start walking into the room and then constantly adjust your angle to block the bullets while you move closer to the turret near the exit [→□ 02]. Once that one has been knocked over, the other two can be done as normal. This method is slightly riskier since any wrong step could lead to you being shot by the turrets, but with a little bit of practice it will become quite simple.

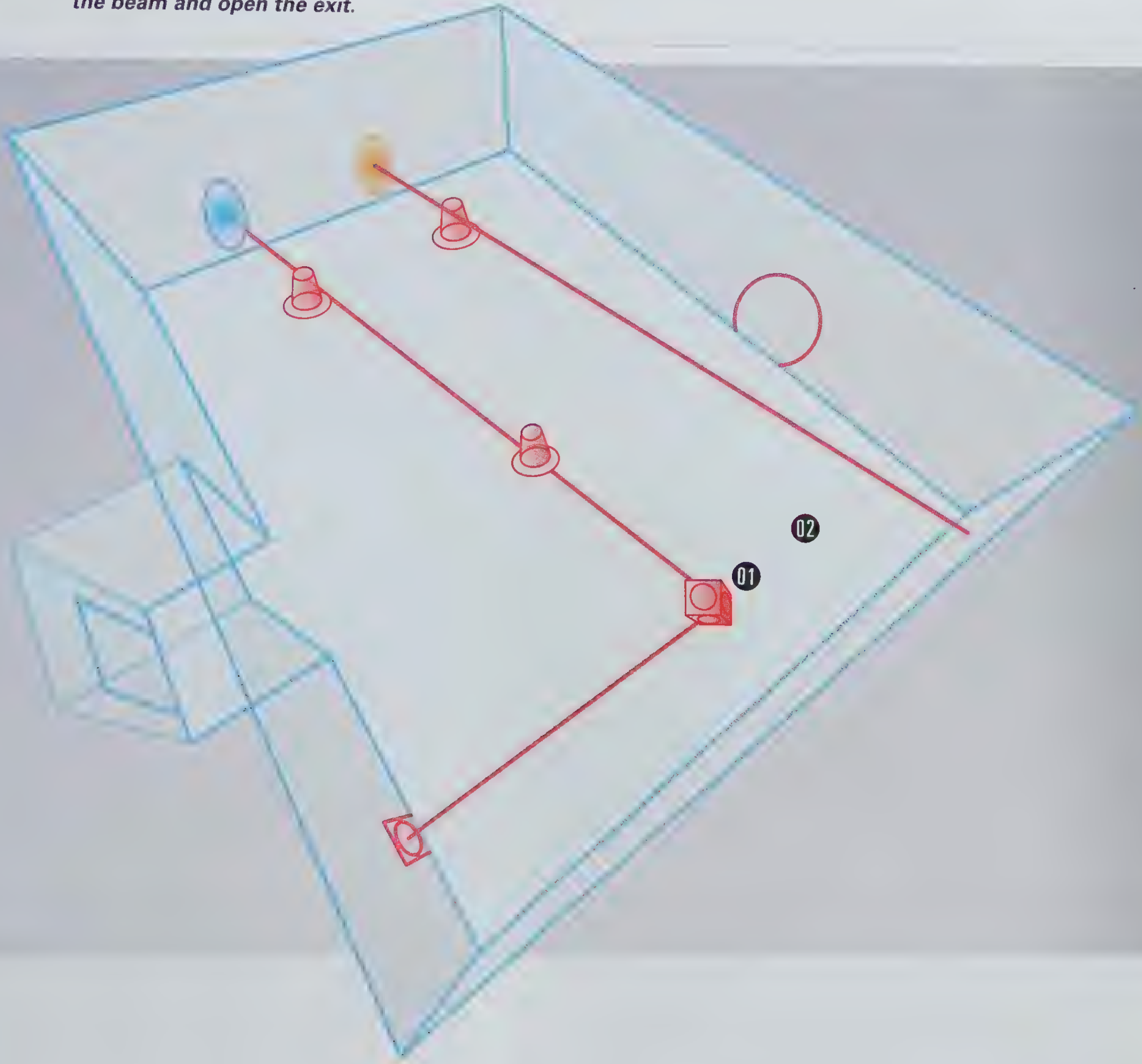
14

06/09

GLaDOS Test Chamber 14

07_026

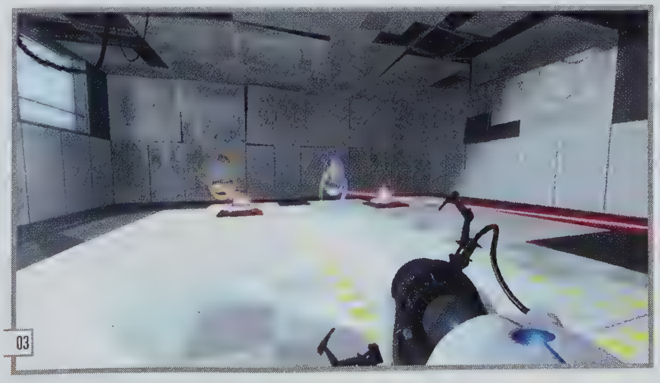
In this chamber, you will be introduced to another new testing element, Relays. To activate a Relay you need to have a beam passing through it, and they only remain active for as long as the beam is passing through them. The goal of this test is to have all three Relays activated at the same time so that the exit opens. To accomplish this you will need use a combination of the Redirection Cube and portals to correctly align the beam and open the exit.



01 Before you can continue testing, you will first need to reach the chamber. Follow the long catwalk until you reach the platform at the end and then once GLaDOS has finished assembling the chamber, the platform will rise and the testing can begin.

02 Pick up the Redirection Cube and move it so that it is just to the right of the platform that brought you into the room. From this position you should be able to reflect the beam so that it passing through the left-hand and middle Relay. Place a blue portal behind the left Relay, on the wall that the beam is hitting, and then place the orange portal on the wall four panels to the right of it. Because of how sensitive the angles of the beam are, you may need to adjust the portal placement slightly depending on the position that you placed the Redirection Cube. [→☐ 03]

With the correct alignment of portals, the beam will easily pass through them and activate the final Relay. Once all of the Relays have been activated, the exit door will open and after jumping over the beam you will be able to pass through it and take the elevator to the next chamber.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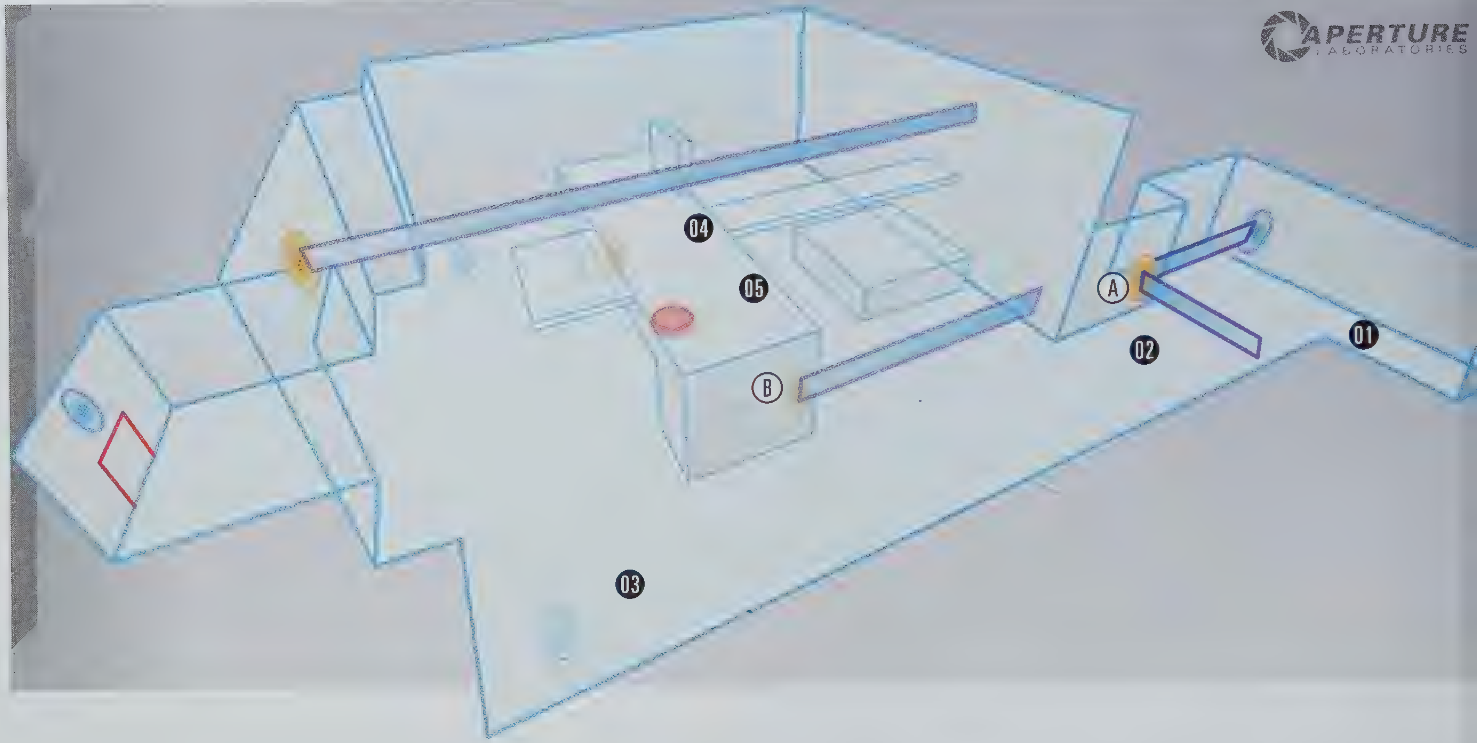
15

07/09

07_027

GLaDOS Test Chamber 15

The goal of this test is for you to find a way of safely acquiring the cube from between a group of turrets, and then use it to activate a button and open the exit. The main obstacles in the way of completing the test are the number of turrets around the room, so you will need to use the Light Bridge to block their shots by extending it through portals around the chamber.

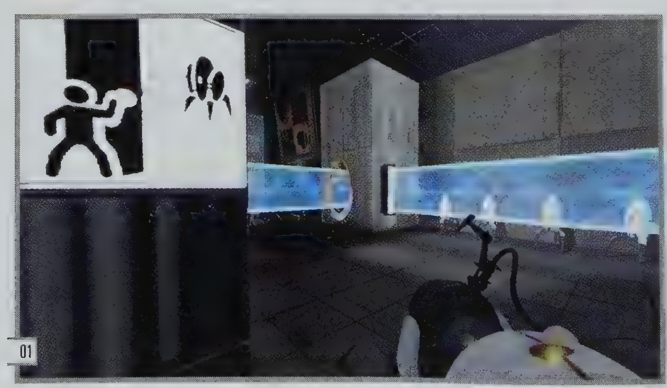


01 Upon entering this chamber, you will straight away see a row of turrets that are having their tracking beam and shots blocked by a Hard Light Bridge. It's this ability of the Light Bridges which is the focus of this test. There is one turret, however, which is not being blocked by a Light Bridge, just around the corner from the entrance and you will need to get around it in order to advance.

Place a blue portal on the wall opposite the Light Bridge generator and then peek around the corner and place an orange portal at Position A so that it extends the Light Bridges and blocks the turret [→☐ 01]. Step through the blue portal that you created so that you come out on the other side of the Light Bridge, behind the turret you just blocked; knock the turret over to that it no longer poses a threat.

Aperture Information Service

Instead of knocking over the turret after you step through the portal, you can use it to unlock the Pturretdactyl Achievement/Trophy in this area. Extend the second Light Bridge as usual so that you can walk down the left side of the chamber, only this time do so while carrying the turret. When you get to the Faith Plate, place the turret onto it to get the Achievement/Trophy.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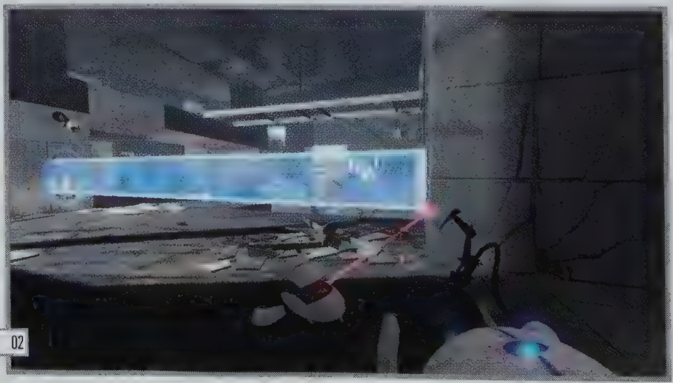
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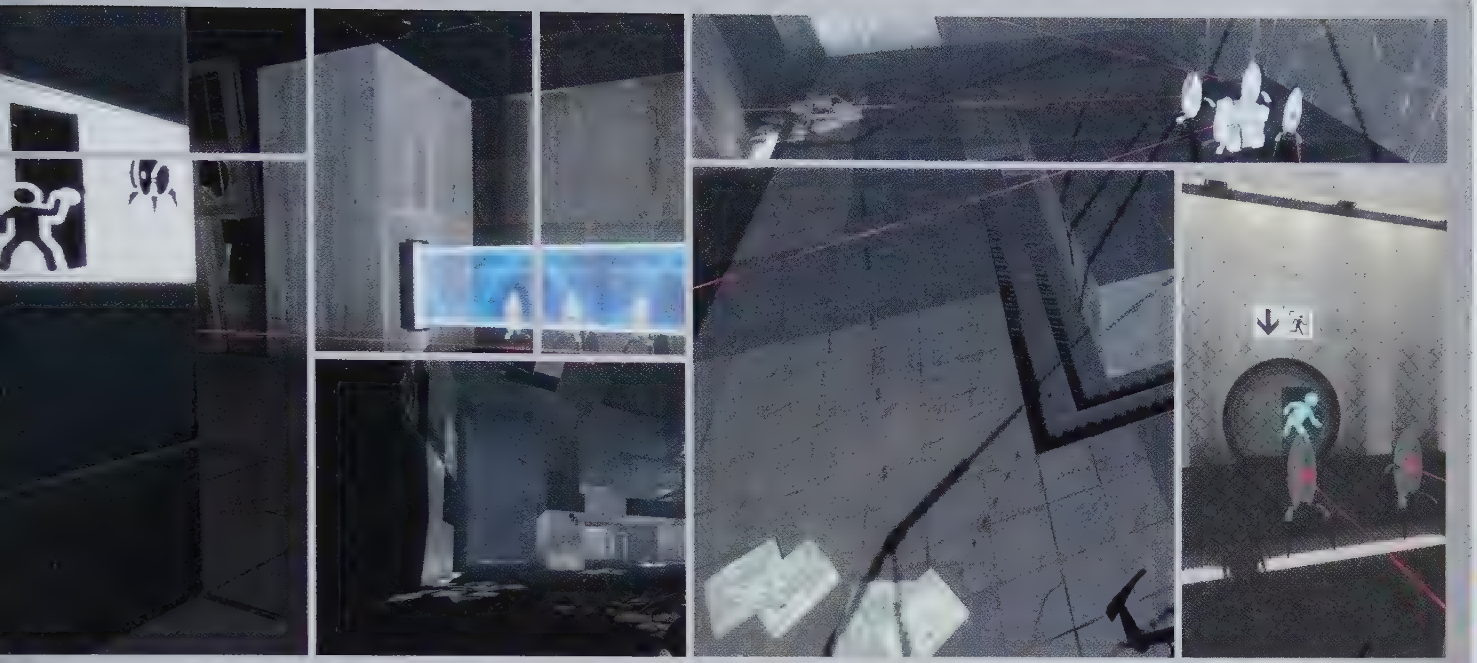


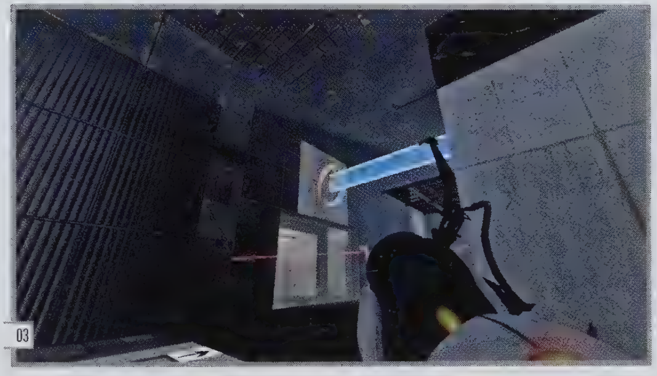
02 The room ahead is extremely large and filled with turrets so you will need to make effective use of the Light Bridge in order to make it to the exit in one piece. Around the corner to the right of this location, there is a group of four turrets on a raised section of the floor, and they will need to be blocked before you can advance to the back of the chamber. Reposition the orange portal so that it is on the column at Position B, making the Light Bridge extend across the chamber and protect the left side of the room from the turrets. [→☐ 02]

03 Now that the Light Bridge is blocking the turrets, you can safely start walking down to the Faith Plate on the opposite side of the room. The only safe way to retrieve the cube is to drop down onto it from above, but if you just step onto the Faith Plate, it will catapult to the other side of the room. In order to land on the platform above, you will need to set up a Light Bridge that will stop your progress mid-flight once you step onto the Faith Plate.

Reposition the orange portal so that it is in the middle of the portalable section of wall above the glass panel that is blocking the exit [→☐ 03]. You should now have a Light Bridge extending along the middle of the room up high, and if you now step onto the Faith Plate, you should hit the Light Bridge mid-flight and land safely on the platform.

04 Walk along the upper section of the chamber until you come to a missing panel of glass in the floor and then drop down between the turrets below. Pick up the cube as soon as you land and then use it to knock over all of the turrets so that you can move about the chamber safely.

05 To reach the exit you will need to place the cube onto the button so that the glass panel that is blocking the path is lowered, doing this, however, will also give the two turrets that are near the exit a clear shot. As soon as you place the cube on the button, reposition the blue portal so that it is on the wall above the exit, and then place the orange portal on any of the walls near the button [→☐ 04]. Step through the orange portal as soon as it is placed so that you can drop down safely behind the turrets before they can start firing on you, and then take the elevator to the next chamber.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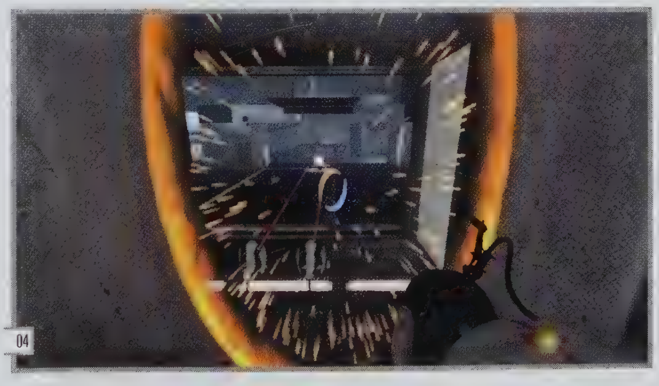
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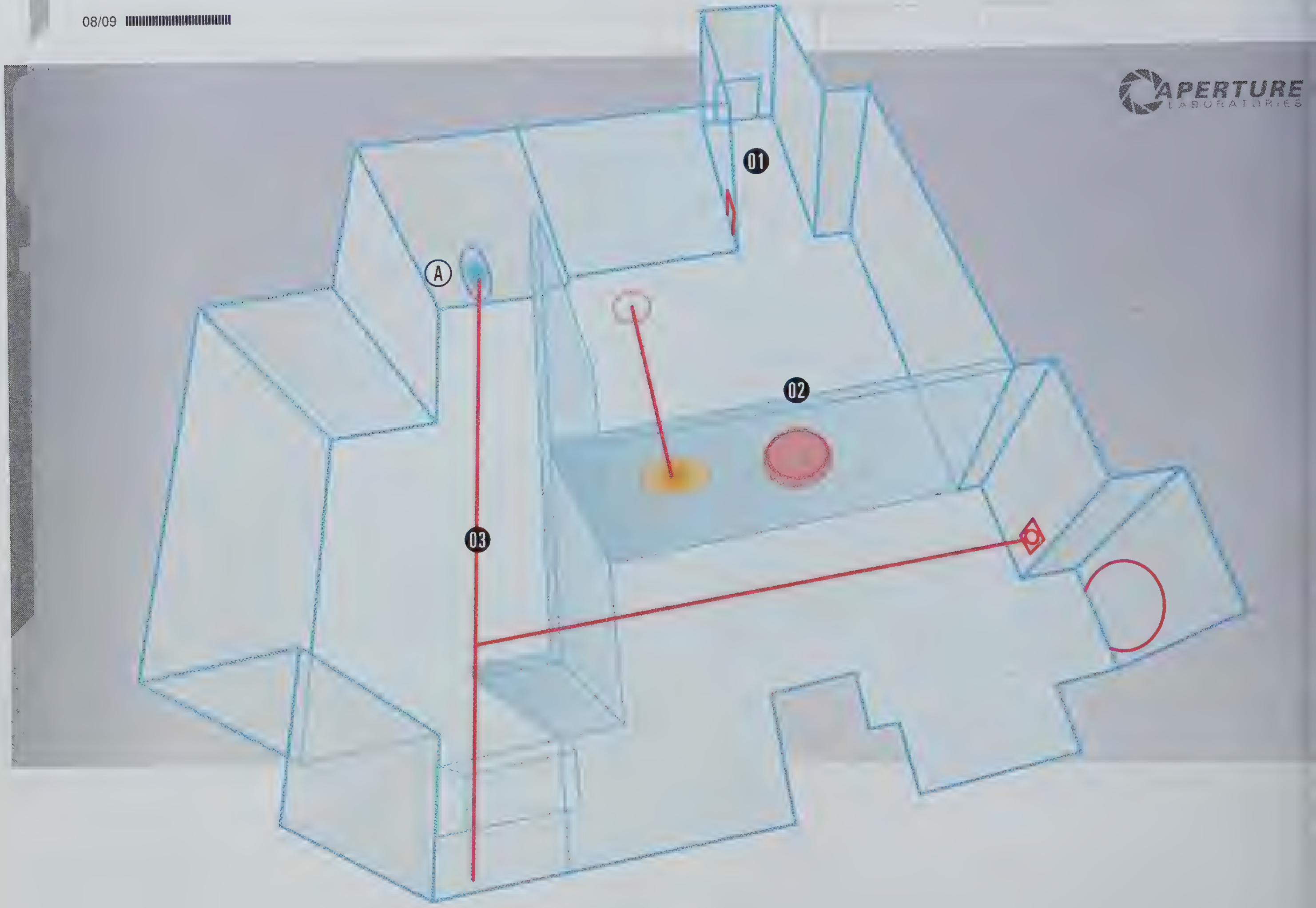
16

GLaDOS Test Chamber 16

The goal of this test is for players to find a way to get the beam into the receptacle on the other side of the glass wall to lower the barrier blocking the path to the exit, without getting killed by the turrets. To accomplish this you will need use the beam to destroy the turrets using a combination of portals and cubes.

08/09

07_028



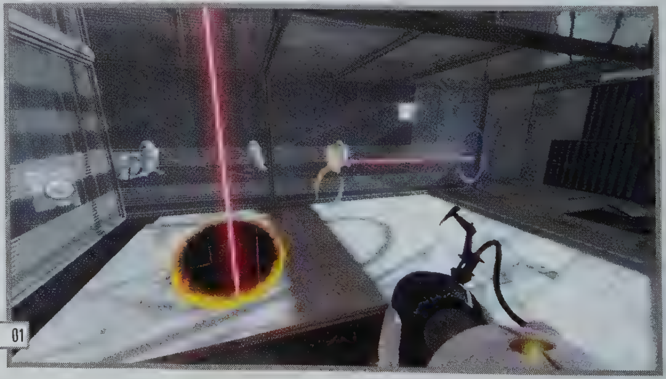
01 There is a turret aiming through a grate in the wall on the right as soon as you enter this chamber, so make sure to walk past it quickly on your way in or it will open fire on you.

02 Place a blue portal on the wall at Position A, which should be exactly where one of the rows of turrets are aiming and then step onto the button to activate the beam. Place an orange portal on the section of floor that the beam is hitting so that it passes through the portals and destroys three of the turrets. [→☐ 01]

03 Now that one section of the corridor is clear, walk around, pick up the Weighted Cube and place it on the button so that the beam remains active. Walk back into the corridor and now pick up the Redirection Cube and use it to reflect the beam into the next section of the corridor and destroy all of the turrets there. Once all of the turrets are gone, reflect the beam into the receptacle so that the barrier opens up, and then head through the exit and into the elevator on the other side.

Aperture Information Service

A hidden room belonging to the mysterious Rat Man is located in this chamber, for details on where it is hidden, please refer to the Enrichment Completion Area Chapter.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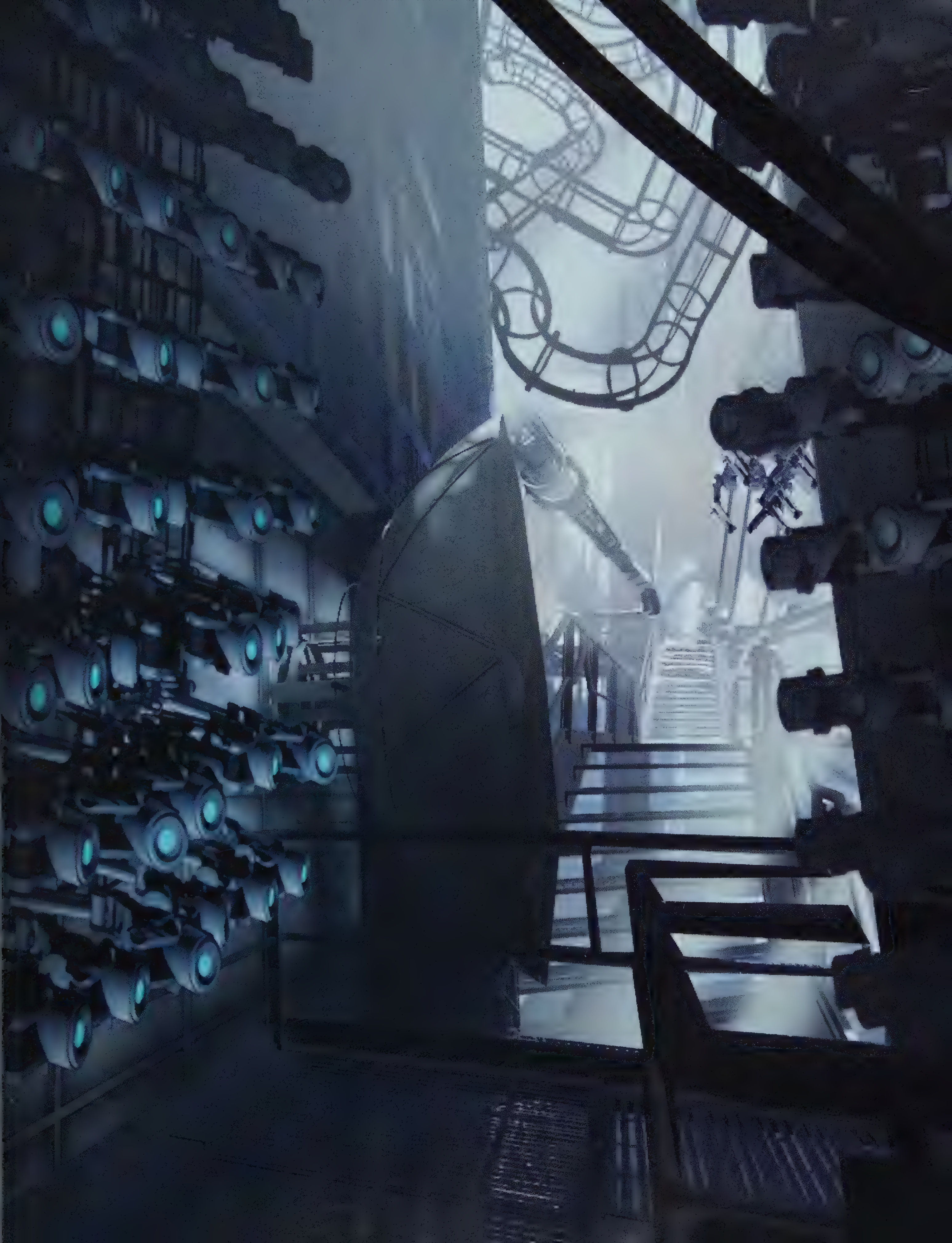


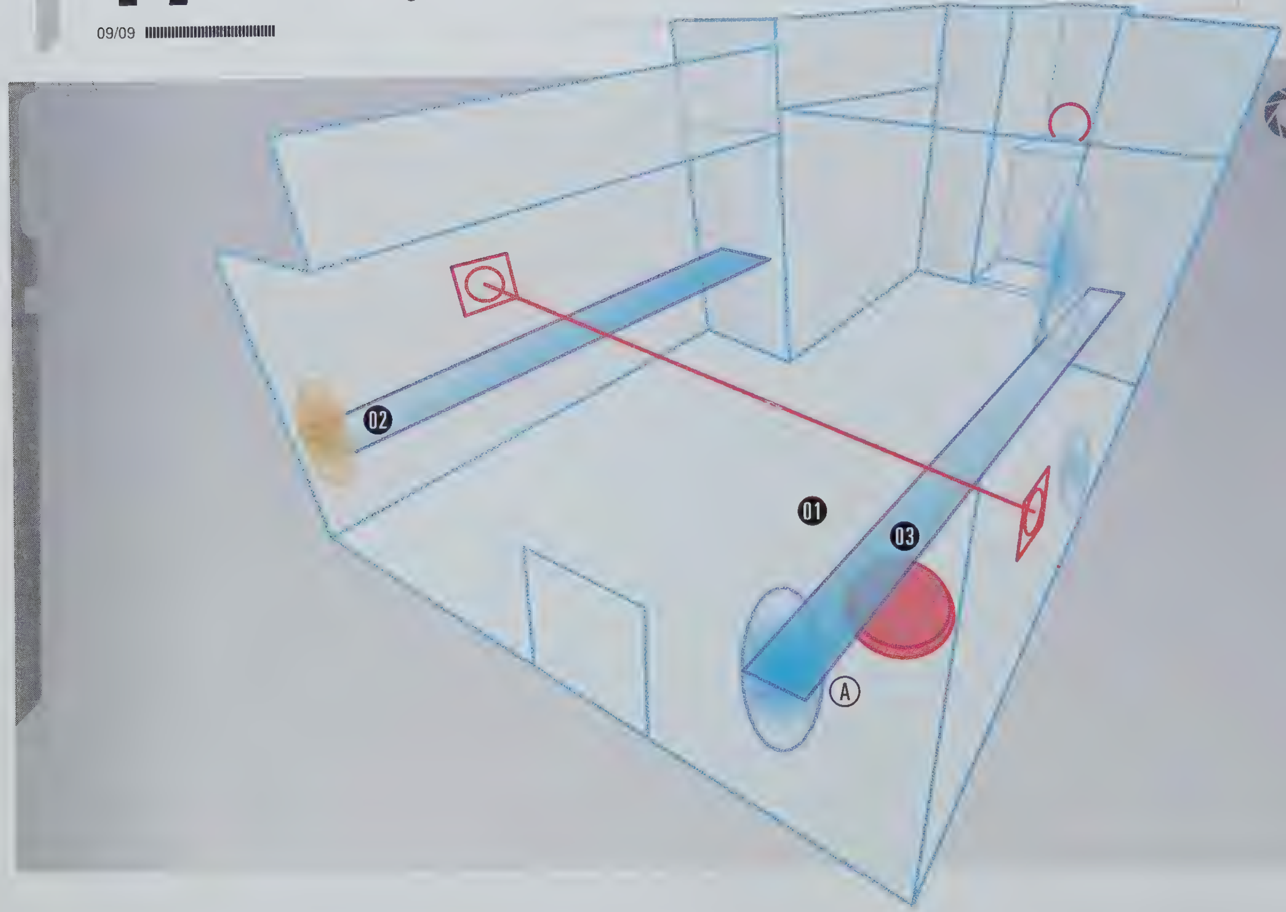
17

09/09

GLaDOS Test Chamber 17

07_029

The aim of this test is for you to find a way to control the position of the moving platform at the back of the chamber, while also activating the button to open the exit. To accomplish this you will need to use portals to extend the Light Bridge and reposition the Weighted Cube above the button.



01 Place a blue portal on the portalable section of wall at ground level on the right as you enter and then place an orange portal on the wall up to the left that the Light Bridge is touching. Step through the blue portal so that you come out onto the Light Bridge near the Weighted Cube.

02 Reposition the blue portal to Position A to extend the Light Bridge across the opposite side of the room above the button, and then pick up the Weighted Cube and step back through the orange Portal.

03 Place the cube back down on this part of the Light Bridge so that it is once again blocking the beam, which should also mean it is directly above the button. With all of the pieces in place, drop down off the Light Bridge and step onto the platform at the back of the room [→☐ 01]. Once you are standing on the platform, reposition the blue portal so that it is on the large portalable section of wall above the beam receptacle.

Moving the portal will cause the cube that was suspended by the Light Bridge to drop down, allowing the beam to hit the receptacle and make the platform start to rise. If the cube was positioned correctly, it should also drop straight down onto the button below, which will open the exit door. Once the platform reaches the top, you can head straight through to the elevator.

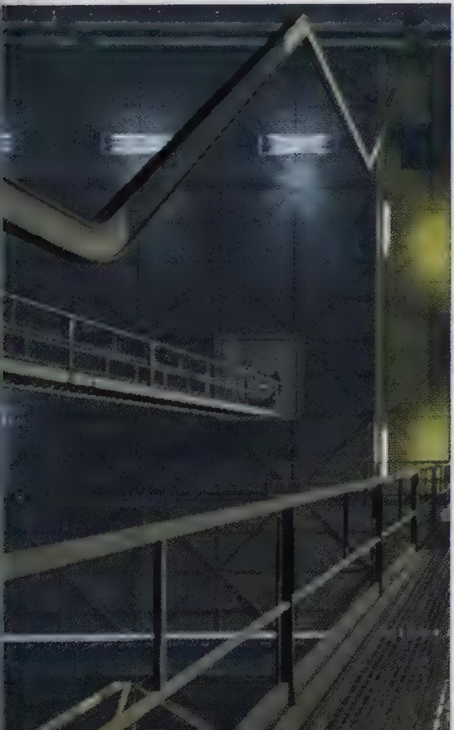
Aperture Information Service

> *Another room belonging to Rat Man can be accessed from this chamber, so to find out how, please refer to the Enrichment Completion Area Chapter.*

01

THE SURPRISE

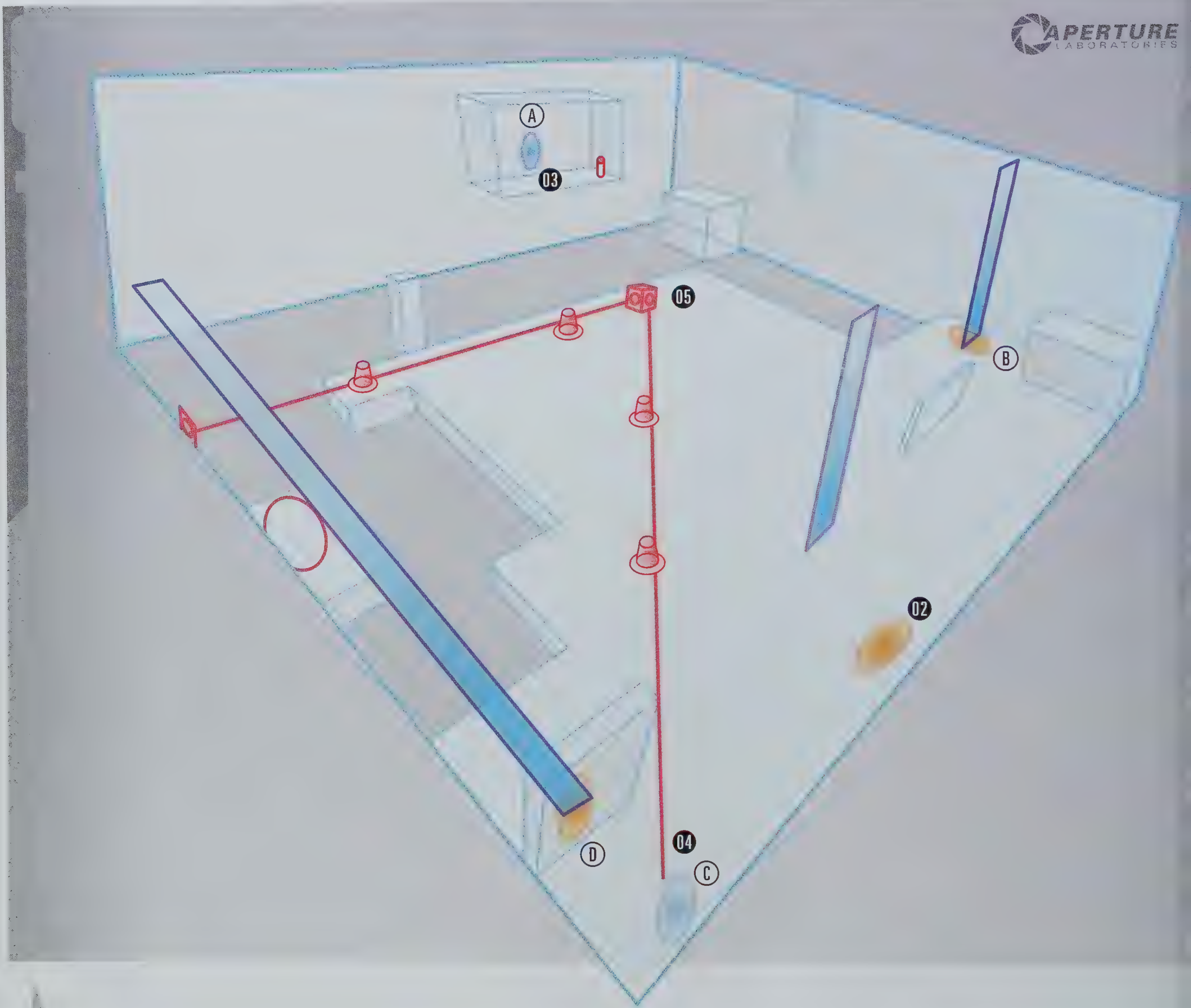
CHAPTER 04



18

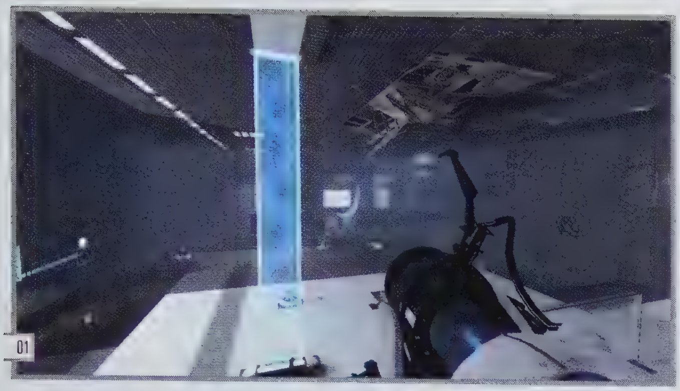
GLaDOS Test Chamber 18

The aim of this test is to pass a Thermal Discouragement Beam through a series of Relays and into a receptacle to open the exit and then find a way across to it without being killed by the turret. To accomplish this you will need to use the Light Bridge to block the turret and then acquire the Redirection Cubes and then use them with the beam to both destroy the turret and hit the Relays to open the exit.



01 After exiting the elevator, head up the stairs and into the dark room on the other side of the door so that you can await the surprise that GLaDOS has been preparing. After experiencing the surprise, walk through the door and into the next room.

02 Place a blue portal on the portalable section of wall near the switch at Position A. Now place an orange portal on the floor just below the room you are in so that you can drop down into it and come out on the ledge near the switch. [→☐ 01]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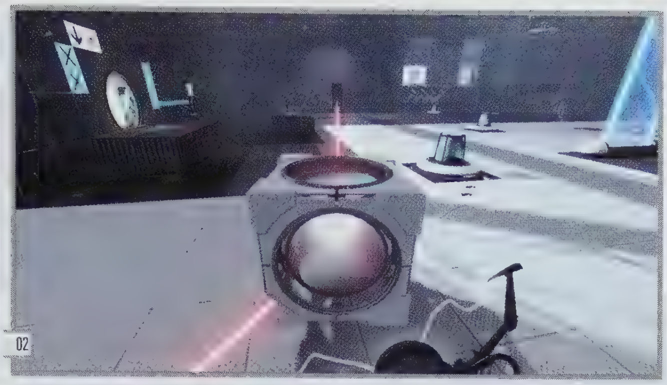
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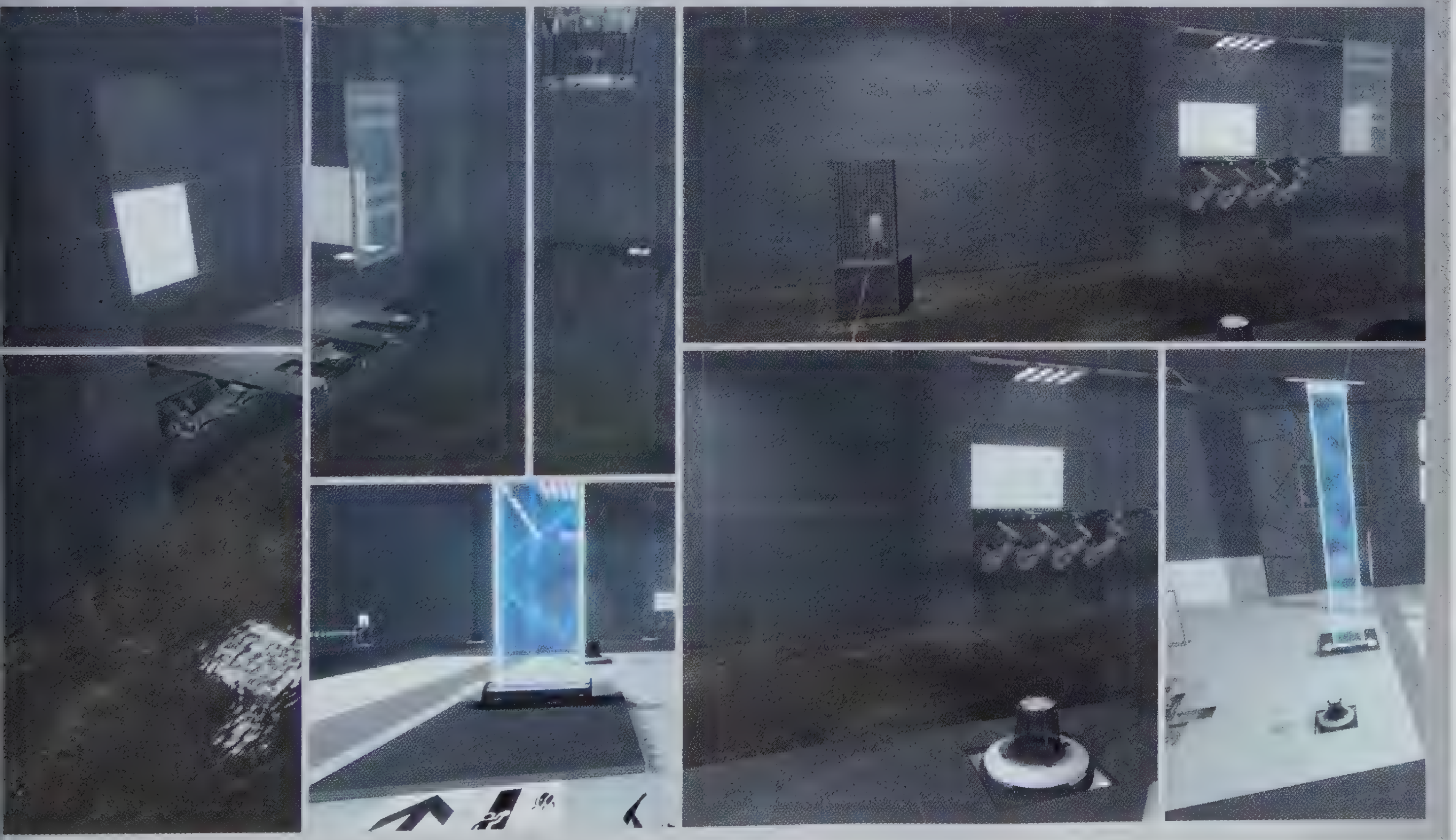
03 If you were to press the switch to activate the dispensers straight away, the Redirection Cubes would drop down onto the Faith Plates beneath them, and then collide mid-air before falling into the moat. To stop them from doing so, you will need to use the Light Bridge to block their flight paths. Place a blue portal on the small portalable surface directly above the Light Bridge generator and then place an orange portal on the floor at Position B to extend a Light Bridge upwards. Now when you press the switch, both of the Redirection Cubes will hit the Light Bridge and fall onto the ground next to it.

Once both of the Redirection Cubes are on the ground, place a blue portal on the wall near the beam at Position C. Now you can place orange portals under each of the Redirection Cubes so that they fall through the portal and come out near the beam. Once both cubes are near the beam, place an orange portal on any of the portalable surfaces near the switch and then step through it to reach the area with the beam.

04 Pick up one of the Redirection Cubes and reflect the beam so that it passes through the closest two Relays and then drop that Redirection Cube on the floor. Once the Relays are active, pick up the second Redirection Cube and move forward with it so that it is contact with the beam, just to the side of the free standing wall. From this position, you should be able to use this cube to reflect the beam into the turret and destroy it. [→□ 02]

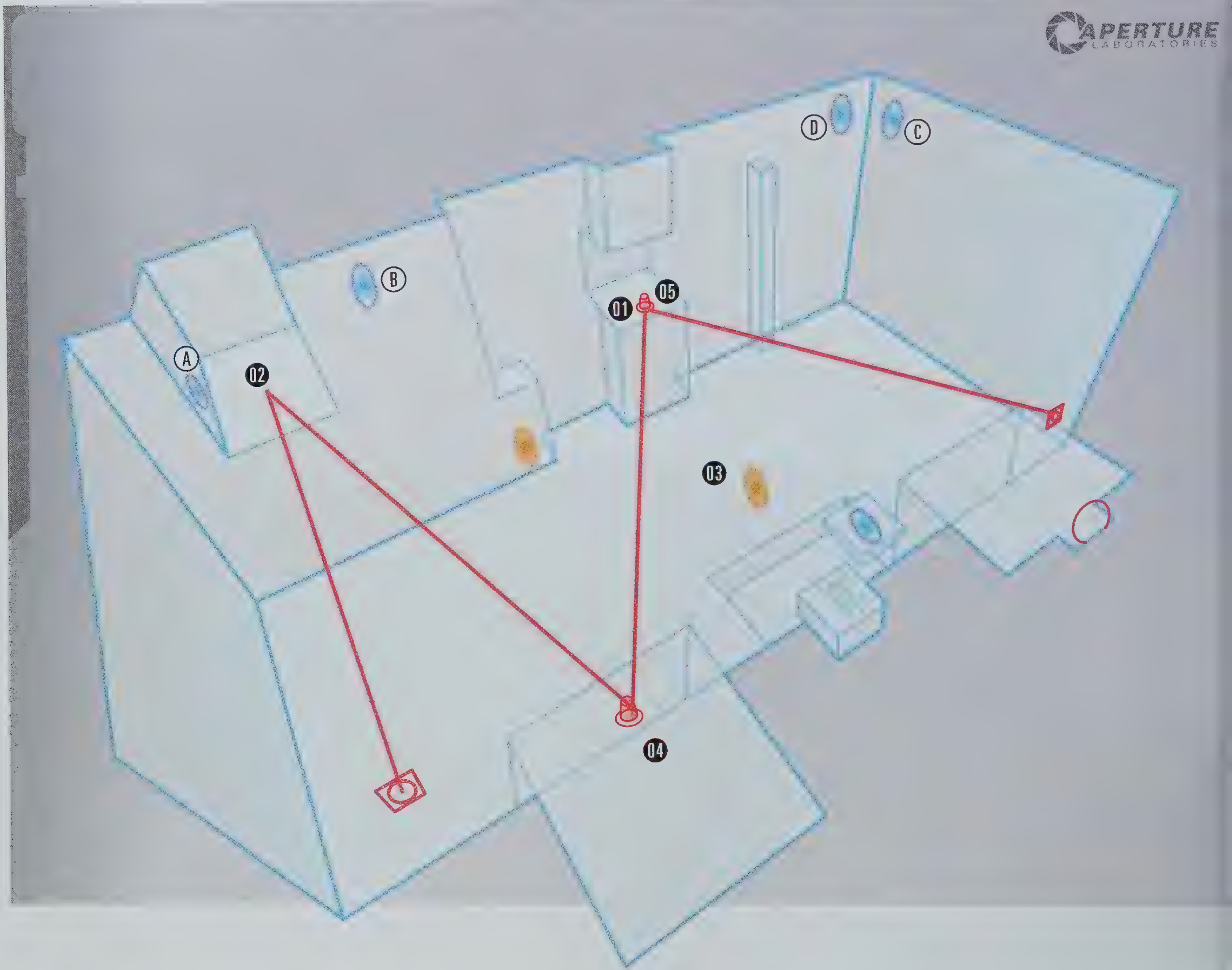
05 After destroying the turret, carry the second Redirection Cube over to the front of the moat and use it to reflect the beam back through the remaining two Relays and into the receptacle to open the exit. Now that the exit is open, you just need to create a path to access it. Place a blue portal on the surface above the Light Bridge generator and then place an orange portal at Position D on the free standing wall near the origin of the beam. The Light Bridge should now extend across the moat in front of the exit so you can easily walk along it and get into the elevator.



19

GLaDOS Test Chamber 19

The aim of this test is to find a way of passing the beam through a series of Relays around the chamber and use it to destroy the turrets before directing it into a receptacle. To accomplish this you will need to use the Faith Plate to generate momentum, and use flings to reach the high ledges and Redirection Cube positions.



01 To start with, place a blue portal on the ceiling above the Redirection Cube on the ledge to the left of the entrance and then drop down and place an orange portal on the wall at ground level. Step through the orange portal so that you land on the ledge with the Redirection Cube and then pick it up and fall back down to ground level.

02 Reposition the blue portal so that it is on the wall at Position A, in the alcove opposite the origin of the beam. Pick up the Redirection Cube and then step back through the orange portal so that you land in the alcove. Use the Redirection Cube to reflect the beam back across the chamber so that it is passing through the Relay on that side and then drop back down.

03 Pick up the Redirection Cube that is on the floor in the middle of the chamber and place it onto the portalable floor just in front of the Faith Plate. Place a blue portal onto the surface directly above the faith plate and then place an orange portal underneath the Redirection Cube. The Redirection Cube should fall through the portal, hit the Faith Plate, and then get catapulted back up through the orange portal.

While the Redirection Cube is in mid-air, reposition the blue portal onto the wall at Position B near the camera so that when the cube falls back down, it flings out of the blue portal into the alcove with the first Relay [→□ 01]. Once the cube is safely in the alcove, repeat the same steps so that you can also get up to the Relay.

Aperture Information Service

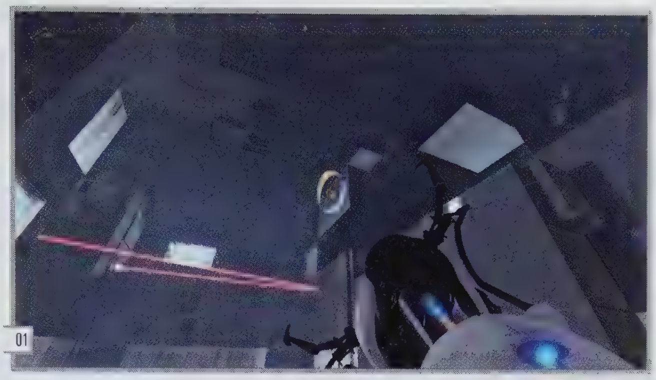
There is a slightly advanced way of getting the second Redirection Cube up to the Relay that can be used to save some time. Instead of sending the cube first and then following afterwards, simply drop into the orange portal on the floor while holding the cube. Now when you get catapulted back up, quickly release the cube, fire the blue portal onto the wall and then catch it again. If done correctly both you and the cube will fling out of the blue portal and into the alcove at the same time.

04 Pick up the Redirection Cube and use it to reflect the beam over to the Relay near the entrance and then drop back down to the ground below. Place a blue portal above the Faith Plate again and then walk onto the portalable floor and place an orange portal beneath you. This time when you get catapulted up, reposition the blue portal to Position C. If the portal was placed correctly, you should be flung out of the blue portal, hit the ledge with the final Redirection Cube on it and knock it off.

05 Depending on the angle and speed at which you hit the ledge near the Redirection Cube, it should end up either on the ledge near the entrance, or on the floor at ground level. If the cube is down at ground level, place a blue portal on the ceiling near the entrance, and then place an orange portal on one of the walls and carry the cube through the portal to reach the ledge near the entrance.

Use the Redirection Cube to reflect the beam across to the ledge where the exit is and destroy the turrets that are standing in front of it and then angle the beam into the receptacle to the left [→□ 02]. Getting the beam into the receptacle will cause a section of wall beneath it to rise up and form a platform extending out from the ledge.

Drop back down to the ground below and then place a blue portal above the Faith Plate again and walk onto the portalable section of floor and place an orange portal on the floor. Drop down into the orange portal and then once you are catapulted back up, move the blue portal onto the wall at Position D. Now when you drop back down through the orange portal you will fling across to the platform near the beam receptacle and from there you can walk through the exit and into the elevator.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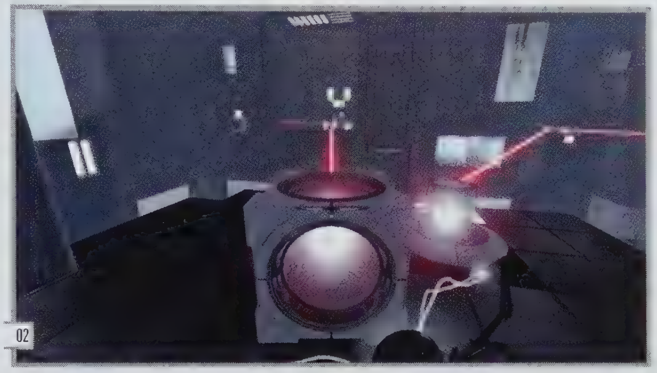
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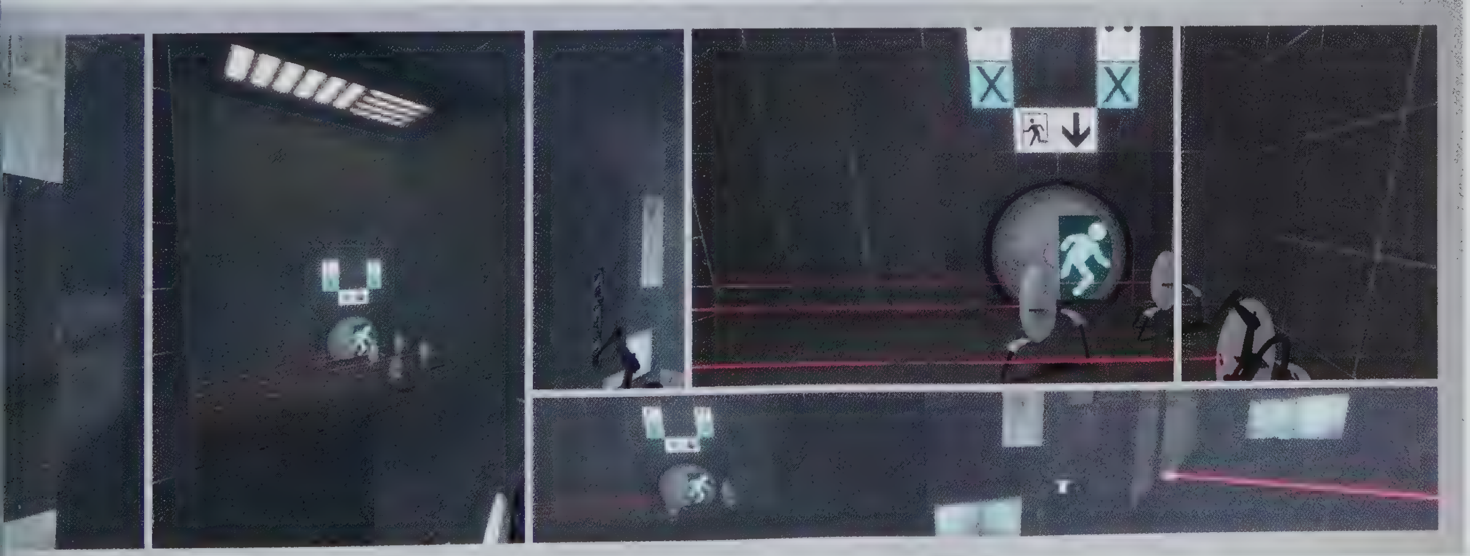


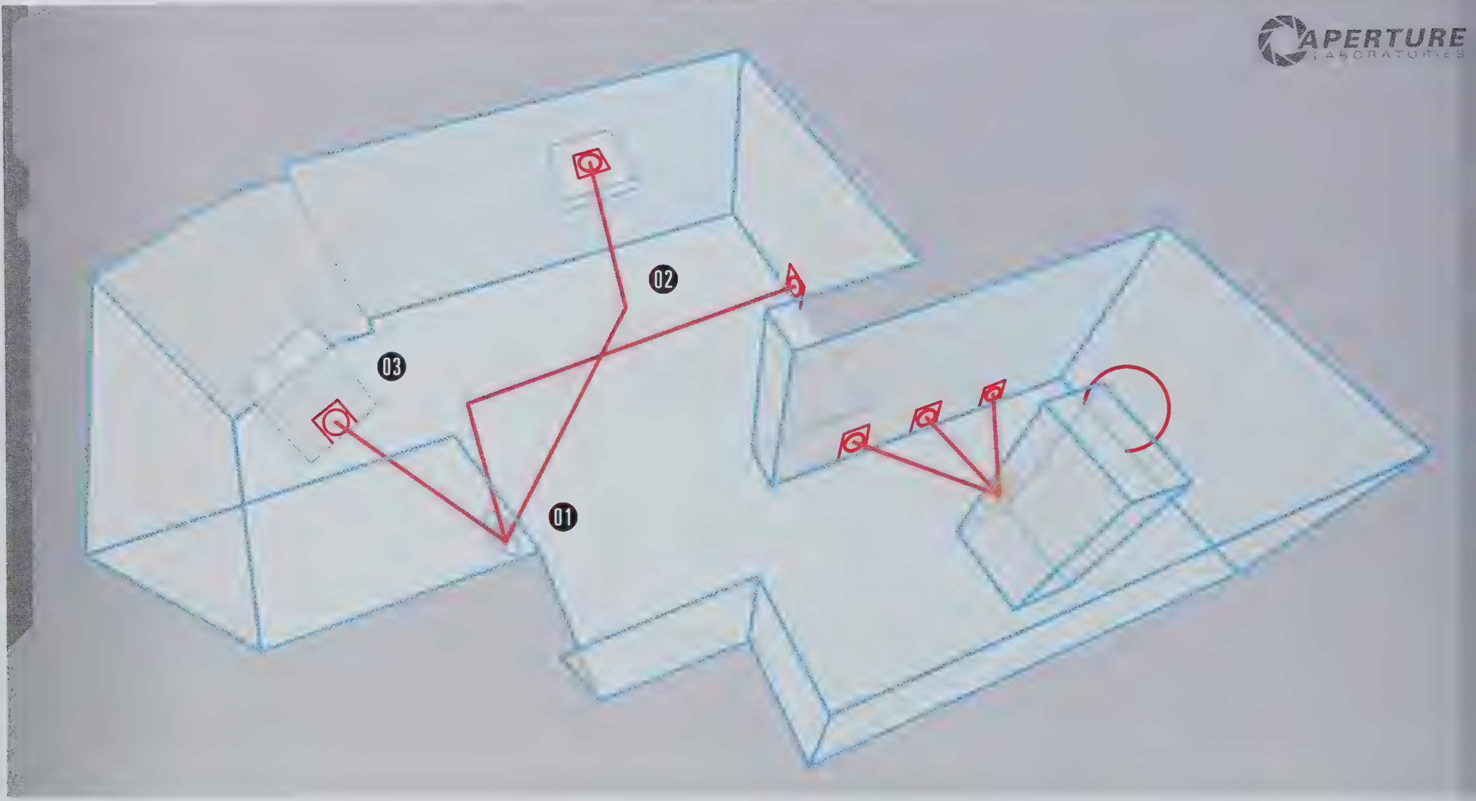
20

03/05

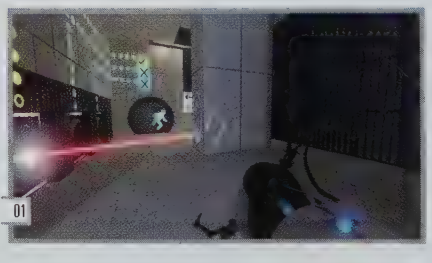
07_032

GLaDOS Test Chamber 20

The aim of this test is to get each of the beams in the main part of the chamber around the corner and into one of the receptacles near the exit. To accomplish this you will need to use a combination of Redirection Cubes and portals to create a new path that ignores the corner.



01 Walk forward into the chamber a short distance and then turn around to the left and locate the place on the wall that the beam in the back left-hand corner is hitting and place a blue portal there. Now go back over to the area near the exit and place an orange portal onto the side of the column, facing the receptacles. If positioned correctly, the first beam should pass easily through the portals and straight into one of the receptacles. [→☐ 01]



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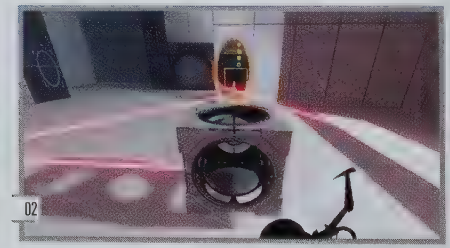


02

02 To get the next two beams into receptacles you will need to make use of the Redirection Cubes, so walk over and pick up the cube at the back of the main room. After picking up the cube, turn around so that you are facing the blue portal on the wall and you should be able to see another receptacle through the portal. Walk forward with the cube so that it is reflecting the beam firing down from the ceiling straight into the receptacle and then put the cube on the floor.

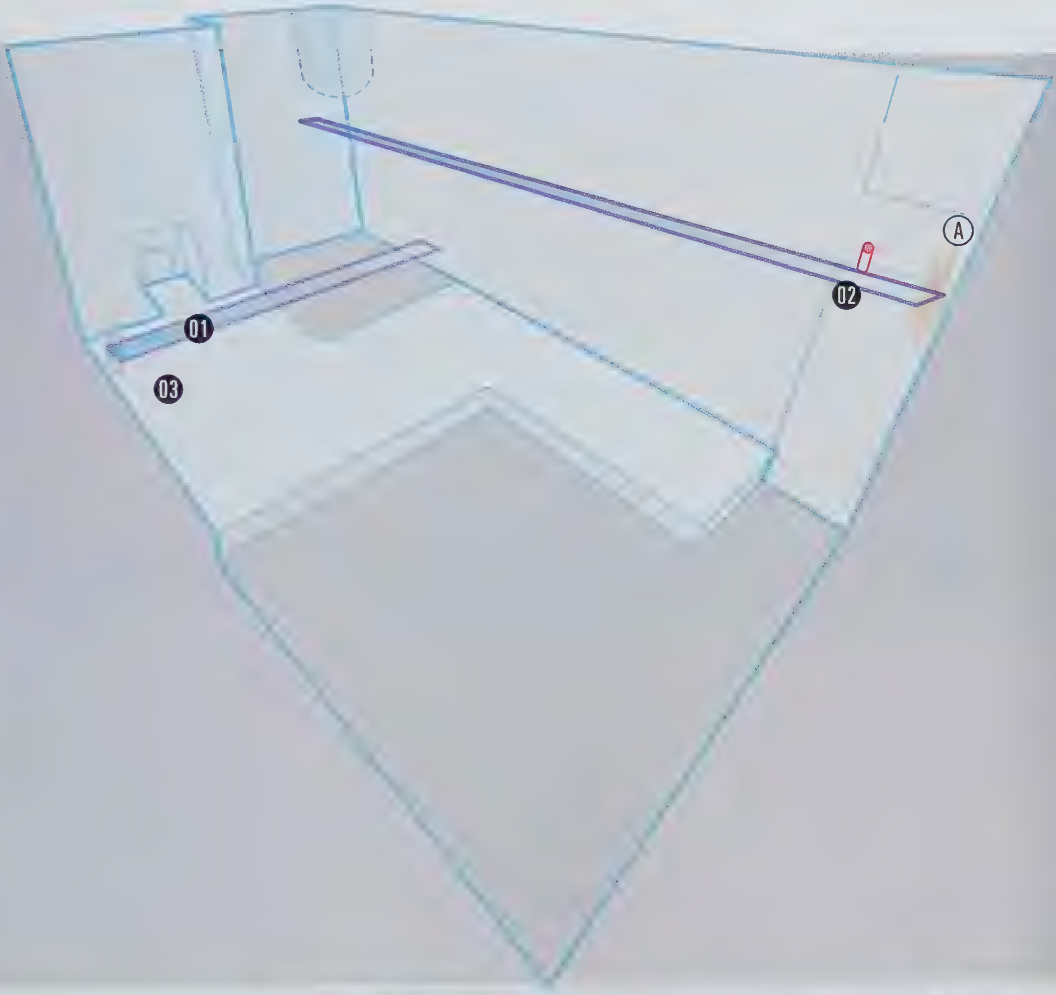
03 For the final beam, pick up the remaining Redirection Cube from the middle of the room and start carrying it over to the right while looking through the blue portal. Now that the Redirection Cube is not blocking its path, the final beam will fire straight across the middle of the room. As you start to get near the other side of the room, the final receptacle should come into view and when it does, use the cube to reflect the third beam through the portal and into the receptacle [→☐ 02]. The exit door should now be open, so jump across the beams and make your way down into the elevator.

21

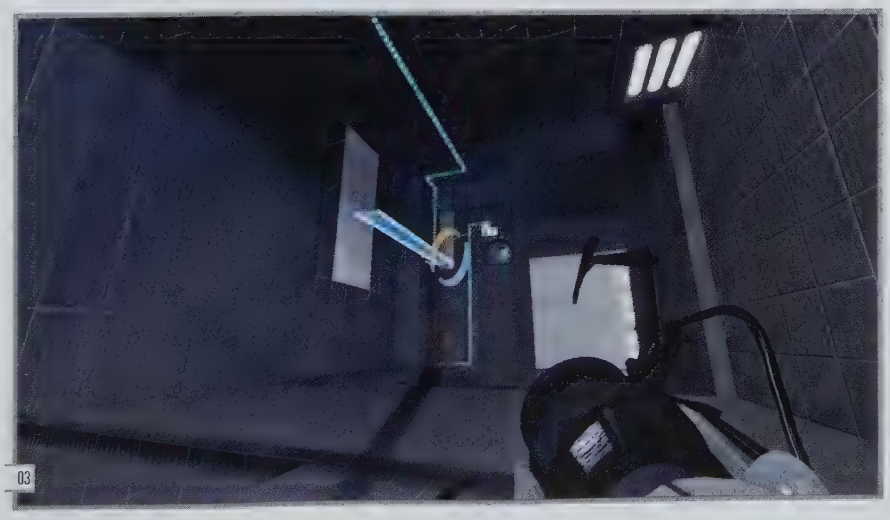
GLaDOS Test Chamber 21

The aim of this test is to find a means of acquiring a cube before it falls into the moat. To accomplish this you will need use portals to extend the Light Bridge so that it passes next to the switch and below the dispenser.

07_033



01 On your way into Test Chamber 21 GLaDOS will inform you that there is another surprise waiting for you after completing the next two courses, not that ary incentive to continue testing is needed. Start by placing a blue portal on small section of portalable wall that the Light Bridge is extending to on the right of the chamber, and then place an orange portal on the wall at Position A, between the exit and the switch [→☐ 03]. The Light Bridge should now be extending across the room up high and you should be able to step onto it and walk through the blue portal to come out near the switch.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02 Press the switch to activate the Cube Dispenser and a Weighted Cube should drop down straight onto the Light Bridge further ahead. Start walking along the Light Bridge towards the cube, but before you can get close to it, the power in the chamber will mysteriously cut out and you will fall back down to the floor below.

03 After a short period, Wheatley will open up some of the panels in the wall near the entrance where you placed the blue portal and start calling you over to his location. Although Wheatley thinks that GLaDOS is unable to detect his presence due to the uniqueness of his accent, she easily sees through his subterfuge, causing Wheatley to initiate his escape plan sooner than planned.

Aperture Information Service

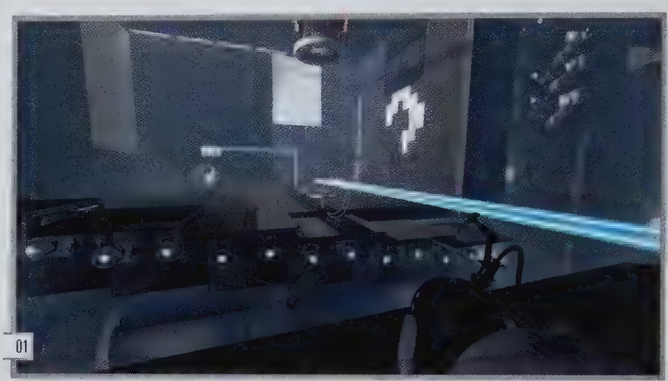
As soon as the wall opens up and Wheatley starts yelling at you to start running, GLaDOS will start filling the room with deadly Neurotoxin, and just like previous Nobel Prize winners, you are also not immune to its effects. At first you will only be able to hear a slight hissing sound to indicate the threat, but after a while the screen will begin to change color to signify that the amount of Neurotoxin is reaching critical levels. When this starts to happen, you will only have a short time to reach safety by exiting through the hole so that Wheatley can close the door behind you and seal the area.

04 Quickly move through the doorway created by Wheatley and walk along the Light Bridge that gets extended so you can reach the catwalk in the middle of the area on the other side. Head left once you are on the catwalk and then follow it along through a service area of the Testing Facility while Wheatley continues to outline his plan.

05 When you come to the end of the catwalk, drop down onto the roof of one of the testing chambers and then start walking along it. GLaDOS will reveal the final Test Chamber at this time and after extending a Light Bridge across the gap she will attempt to lure you into the chamber so that you can complete the test and receive your surprise [→☐ 01]. Ignore all of her advice and start walking to the right along the Light Bridge, away from the Test Chamber. After walking along the Light Bridge for a short while, it will disappear and you will drop down onto another catwalk, follow this around to the left to reach the next area.

Aperture Information Service

You can get the Good Listener Achievement/Trophy for following GLaDOS' escape advice in this location. When the Light Bridge extends after dropping down at the end of the catwalk, instead of following it to the right as you normally would to escape, go left and cross over into the final testing chamber. For a more detailed description, please refer to the Achievement/Trophy Guide in the Enrichment Completion Area Chapter.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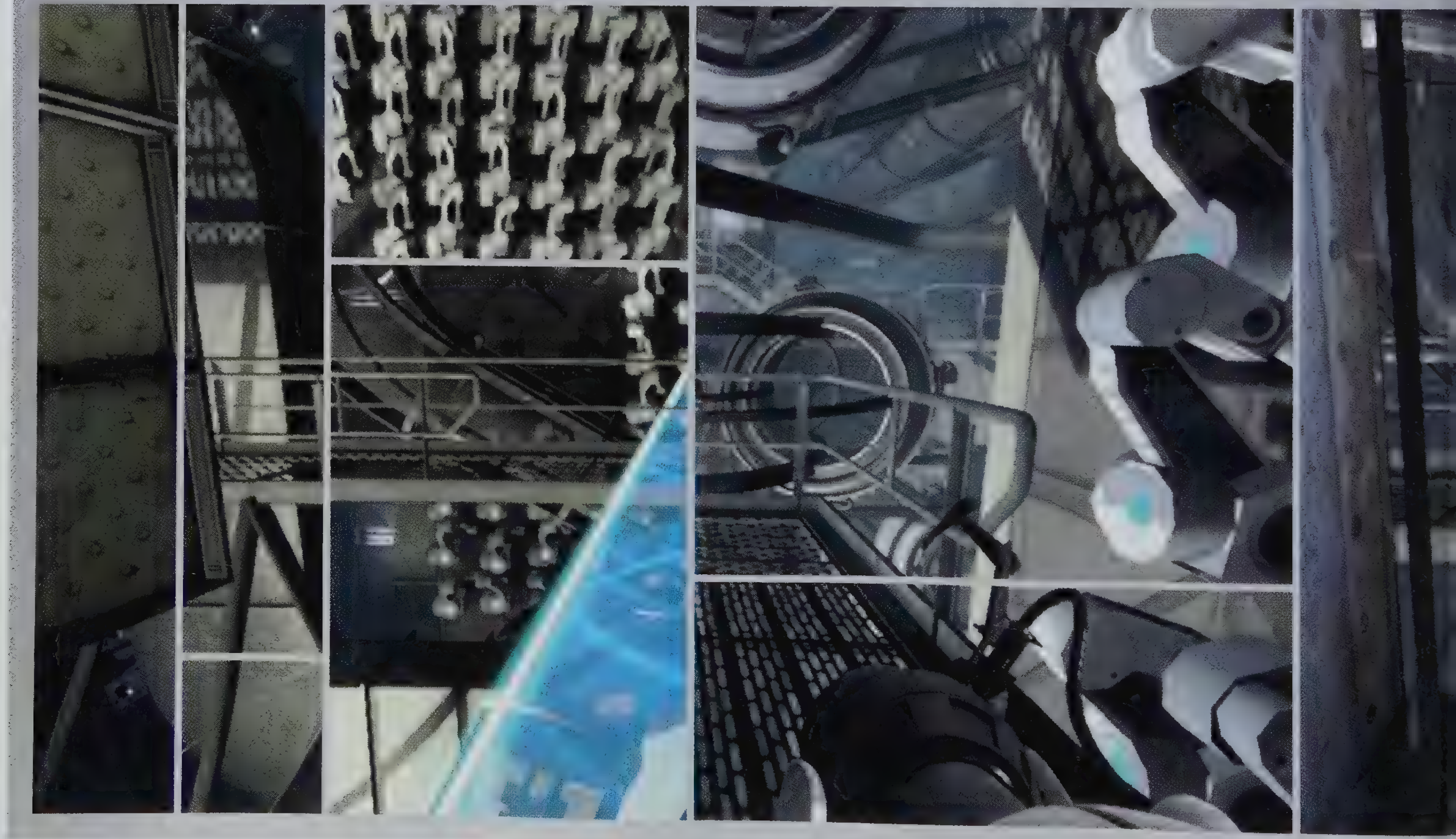


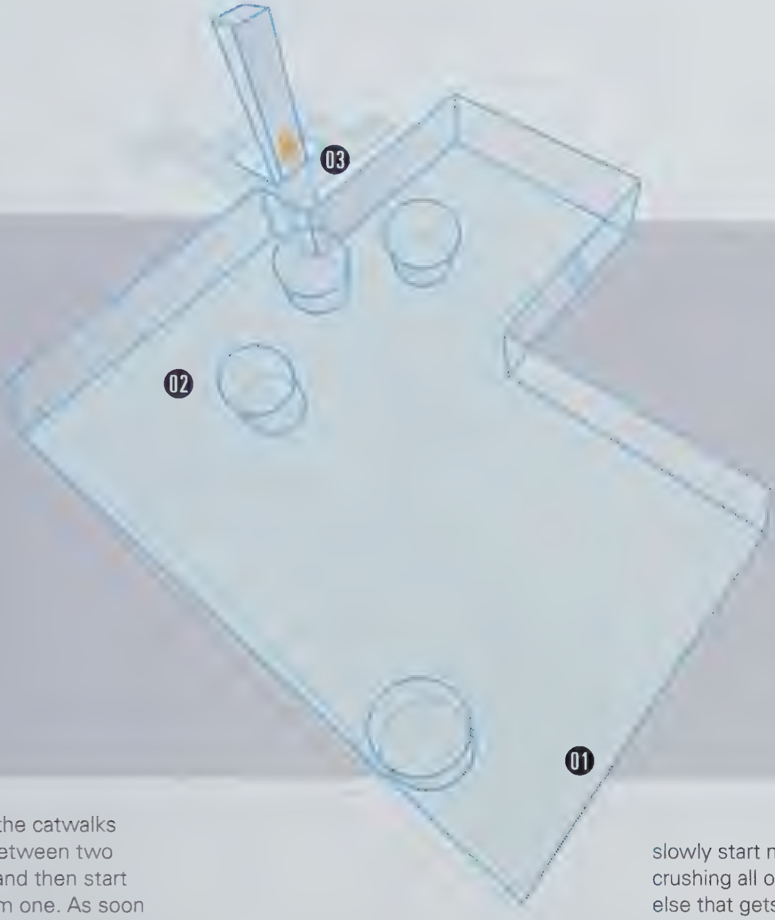
S1

05/05

Deeper into the Facility

07_034

APERTURE LABORATORIES



01 Continue walking along the catwalks until you come to the gap between two Test Chambers on the left, and then start walking out along the bottom one. As soon as you pass by the testing element delivery tube, GLaDOS will lower a group of turrets down from the chamber above. Quickly walk forward once the turrets appear until you are behind the large dampening device between the two chambers. From here, you will be able to get behind one of the turrets safely, pick it up and then you can use it to knock over the second turret just ahead, before throwing it away. [→□ 02]

02 After taking out the first two turrets, head left around another dampening device so that you come out behind the final turret and can knock it over safely. After neutralizing all of the turrets, you will need to find a new path so that the escape can continue. Place a blue portal on the portalable surface that is nearby, and then turn around a look through the gap in the wall on the opposite side to find another portalable surface outside the area you are in. Place an orange portal on this second surface and then step through the blue portal so that you drop down onto another catwalk outside.

03 As soon as you land on the catwalk, head left and then follow it along until Wheatley warns you about another turret in the area. A section of the wall to the left will open up to reveal the turret and as soon as you have a clear view, you should place an orange portal underneath it so that it falls through it into the previous area [→□ 03]. If the turret starts firing on you before you can place the portal, move back along the catwalk a short distance and take cover behind the series of pipes. From this cover position you can also place the portal beneath the turret by firing it through the pipes from safety. Once the turret has been dispatched, continue along the catwalk and up the staircase.

04 As soon as you enter this next room, GLaDOS will start trying to destroy it by using the walls on either side of the room as giant crushing plates. The walls will slowly start moving towards each other, crushing all of the catwalks and anything else that gets in their path. The slightest touch from one of the walls is all it takes to kill you at this time, so make sure you always stay well away from them and keep advancing as quickly as possible in order to make it through alive.

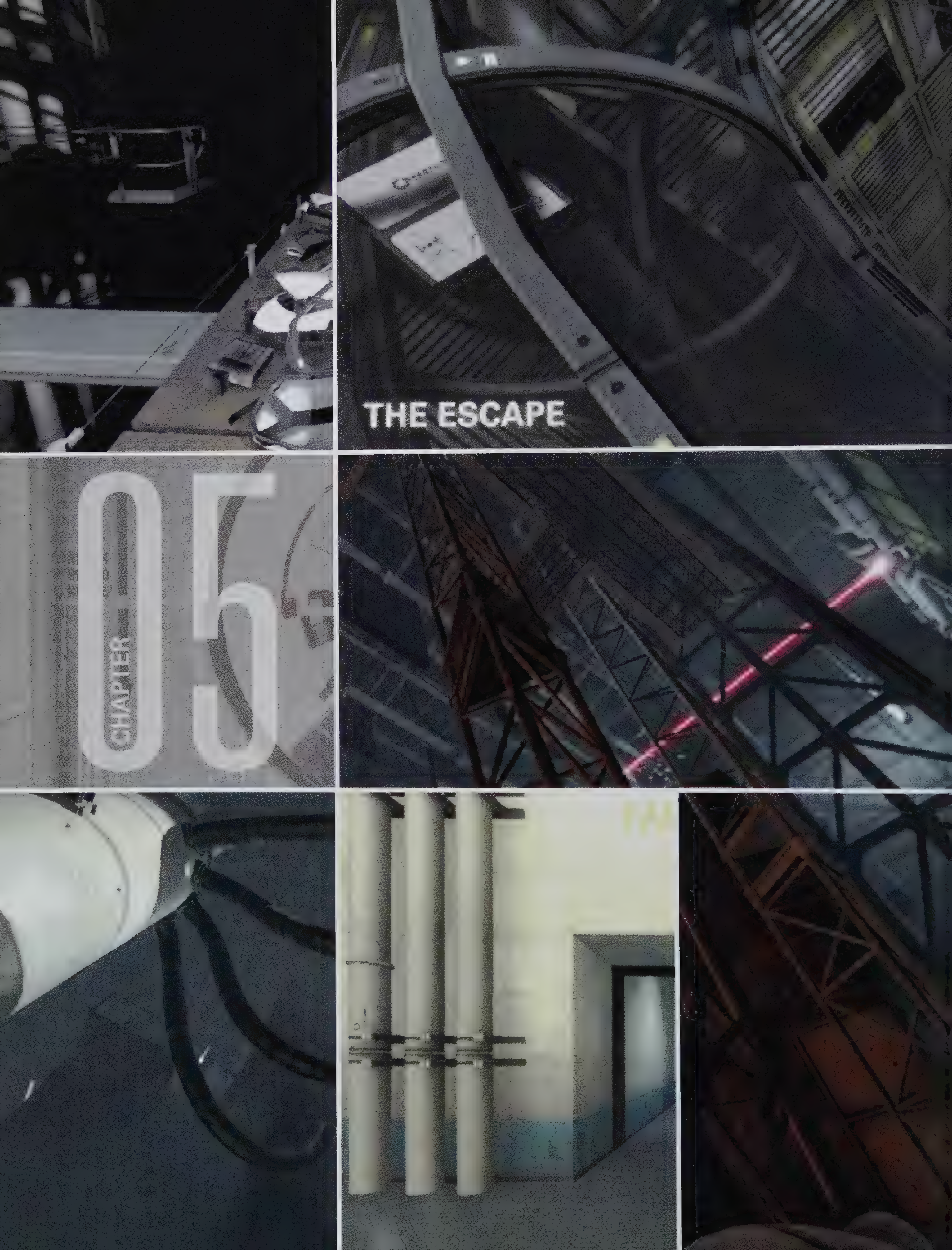
Run along the catwalk when you enter the room and follow it around to the right. A beam will come falling down as you approach the first left-hand fork in the catwalk, destroying the stairs leading up it. Quickly continue and take the next left when you come to it and then run straight ahead into the elevator at the end of the catwalk. The elevator is outside of the area being crushed by the walls so you can safely ride up for a short while. When the elevator comes to a stop, walk forward and go through the series of doors to the next area.

02

03

CHAPTER 05

THE ESCAPE



E1

01/04

Turret Creation Line

07_035

01 The door ahead you at the start of this area will malfunction and only partially open so you will need to find a way to get around it. Aim through the small opening in the door and place a blue portal on the wall behind and then place an orange portal on the wall in the corridor you are in. Step through the orange portal and head left until you come to a series of catwalks and then turn right.

02 After walking along the catwalks following Wheatley for a short while, GLaDOS will start turning out the lights until it is to dark to see anything. Once you lose visibility you should stop moving to avoid any potential danger and after a short period of time Wheatley will activate his onboard lighting system to illuminate the area. Wheatley will now start to move along his management rail, lighting the area around you as you move. Continue along the catwalk, now that you are able to see where you are heading, until you come to a conveyor belt with numerous destroyed turrets on it. [→☐ 01]

03 Wait for Wheatley to catch up to you if he has fallen behind, because this area has little in the way of safety features and without proper lighting it can be very easy to fall to your death. Jump onto the conveyor belt and follow it along to the right until you see a platform on the left side; jump from the conveyor belt onto the platform, and then continue along the next catwalk.

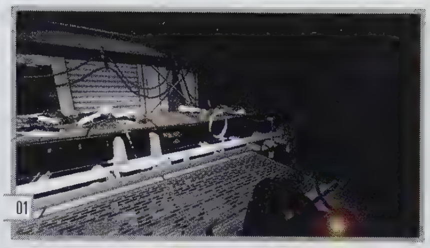
04 After walking for a short distance you will come to a break in the catwalk and you should once again wait for Wheatley to properly get into position above the area [→☐ 02]. To continue on you will need to jump down to another section of the catwalk below, so take a few steps back and line yourself up, and then do a running jump off the broken end of the catwalk. Make sure that you are correctly aligned with the section of catwalk below before jumping and try to time your jump so that you leave the floor a step before the break in the catwalk; mistiming the jump or jumping at the wrong angle can easily lead to death on this tricky jump.

05 After landing safely, continue along the catwalk and up the stairs until you come to a platform overlooking another conveyor belt below. Jump down onto the conveyor belt and follow it as it moves along to the right. Be careful once you get halfway along the conveyor belt because sheets containing parts for the turrets will start passing across it and these can easily knock you off. When you get near to the end of this section on the conveyor belt you will come to a set of robotic arms that are using lasers to cut the turret parts out of the sheets.

These lasers do not kill you instantly, but they do inflict a lot of damage and if you get caught in them you will not survive very long. The next section of catwalk that you need to jump across to in order to continue, is on the left of the conveyor belt near the robotic arms. Before you try to jump across, however, wait for one of the arms to move back along the conveyor belt out of the way. If you try to jump before the arm has moved by, it can often block your jump causing you to fall off the conveyor belt.

06 Walk along the short section of catwalk and drop down the shaft at the end onto another catwalk below. Follow this catwalk along as it winds through a series of delivery tubes and then jump over the small break when you come to it. Keep following the catwalk again after making the jump until you come to a large platform with a portalable wall at the end of it, from which you will be able to see a small alcove up to the left. Place a blue portal onto the wall in the alcove, and then an orange one on the wall near the platform and step through to drop down into a corridor just below the alcove. [→☐ 03]

07 Follow the short corridor until you come to an opening overlooking a production line. Wait for Wheatley to move into the area so that you can get a better look around the area and you should be able to spot a portalable wall on the opposite side of the production line. Watch the spacing between the turret part sheets as they move across the area and then fire a blue portal through one of the gaps between them and onto the wall on the other side. Place an orange portal on one of the walls in the corridor and then step through it to reach a catwalk on the other side of the area.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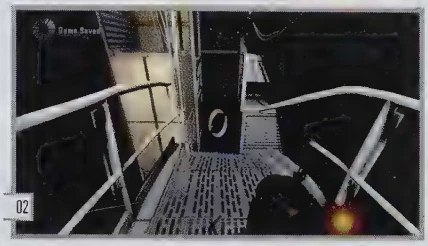

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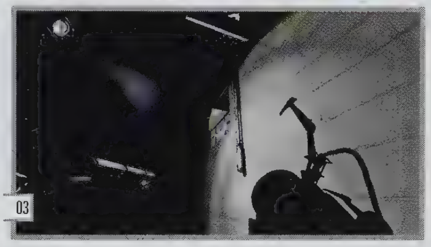
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08 Once you are on the catwalk, look back across the area and wait for Wheatley to highlight another portalable wall to the right. Place a blue portal on this new wall and then turn around and place an orange one on the wall near the catwalk and step through it. Drop down onto the next catwalk and then follow it along to the right, through a turret manufacturing area until you come out onto a ledge overlooking a large vertical shaft containing numerous delivery tubes.

09 If you look down over the ledge you will notice that sections of shaft are protruding from the main walls; drop down onto the first of these sections, and from there drop down onto the delivery tube. Walk along the delivery tube a little until you are directly over a lower section of it and then drop down onto that. Follow the tube round until you are close to an alcove just below this part of the tube and then jump across into the alcove and go along the corridor and through the door to the next area.

Turret Control Center

01 Walk along the corridor after the door opens up and go through the computer room on the other side to come out on a catwalk overlooking a turret redemption line. Place a blue portal on the portalable surface directly above the turret redemption line and then place an orange portal on the wall in the computer room and step through it.

02 Follow the turret redemption line along for a short distance and then, before you reach the furnace at the end, jump onto the container to the right and then up onto the small ventilation ducting. Jump up onto the next ventilation ducting just ahead, and then walk to the end of that and jump onto another turret redemption line. Run against the flow of this redemption line until you can see a blue support beam to the left, and then jump across to it; once you are on the beam, look down to the left to spot the catwalk below and then drop down onto it. [→☐ 01]

Aperture Information Service

While you are walking along the second turret redemption line you will encounter a partially active turret; if you pick this turret up you will unlock the No Hard Feelings Achievement/Trophy for saving it from redemption.

03 Follow the catwalk around to the right and continue through the Material Emancipation Grill until you can see a turret testing area on the other side of a glass safety partition. A conveyor belt continuously moves turrets through this area and each one in turn will come to a stop in front of a target and test its weapons systems. Not all of the turrets work as they should, however, and any with defective weapons are automatically discarded.

Defective turrets also look slightly different from the normal ones, so watch the conveyor belt and try to get used to what they look like. Just behind the target dummy there is a free standing wall with a portalable surface and a small alcove can also be seen behind the conveyor belt. Unfortunately, you are unable to get a portal to either of those areas from this position because of the glass.

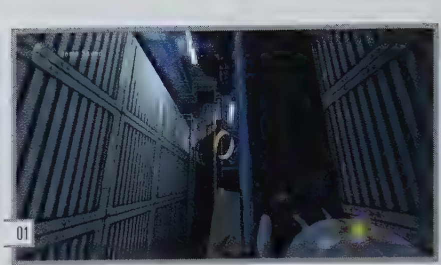
If you look above the target, however, you will notice that another portalable surface just above it, and this one you can reach because the glass does not go all the way up to the ceiling. Place a blue portal at the back of the surface above the target and then place an orange portal on the wall in the corridor and step through it [→☐ 02]. If you placed the portals correctly, you should drop down behind the free standing wall, out of the turrets' lines of fire.

Aim past the free standing wall and place a blue portal into the alcove behind the conveyor belt and then wait for a defective turret to move into the testing position. In this brief window of safety, step out from behind the wall and place an orange portal on the front of it and step through before a functional turret can begin firing.

04 Go through the door on the right of the alcove out onto the catwalk and follow that along until you reach another area for testing turrets. In this area, there is a scanner above the conveyor belt carrying the turrets that scans each one as it passes by; any turrets that are defective, are immediately picked up and thrown into a disposal shute just below the catwalk you walked in on. Get into position on the catwalk so that when one of the defective turrets is thrown towards the disposal area, you can catch it in mid-flight. Once you have secured a defective turret, continue along the catwalks until you reach the turret Control Center at the end.

05 Once you are in the Turret Control Center, set the defective turret down on the floor while Wheatley explains about the Master Turret being scanned and used by the system as a template to compare the others to. When instructed, turn around so that Wheatley can "hack" the door to the scanning area. Unfortunately, his methods are not particularly successful, and you will still need to use portals to get into the room.

Aim through the broken glass and place a blue portal in the scanning room, and then place an orange portal in the main room and step through it [→☐ 03]. Pick up the Master Turret so that the system has no template to compare the other turrets to, and then carry it back through the portals and drop it on the floor. To give the system something new to scan, pick up the defective turret, carry it through the portals, and place it into the scanner. Now the system will only pass defective turrets and all functioning ones will be discarded.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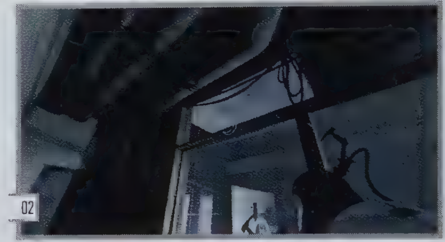
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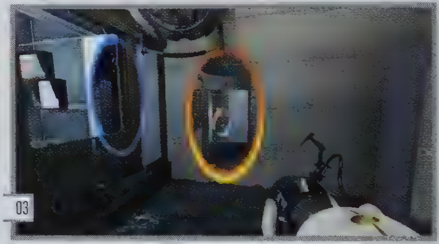
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Aperture Information Service

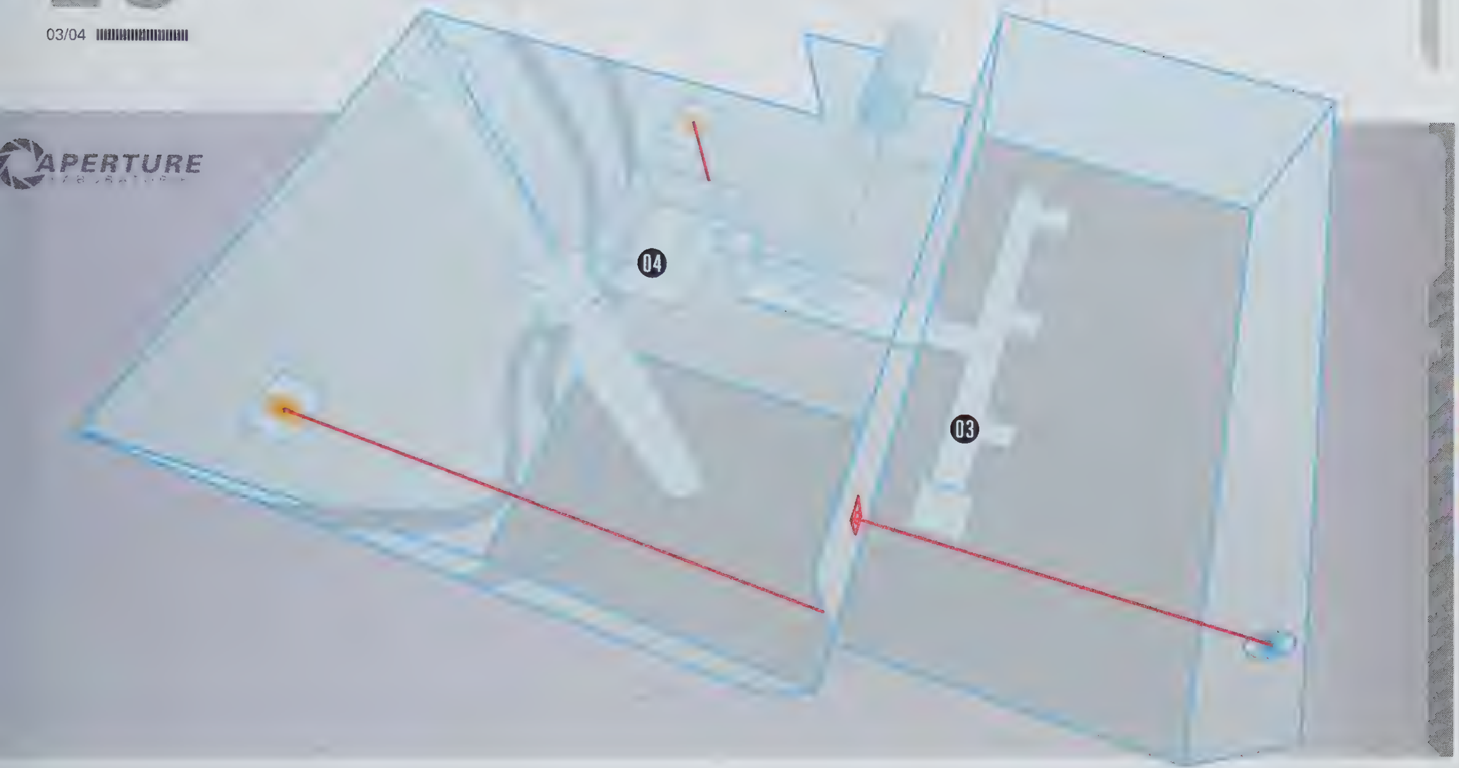
If you step into the turret scanner before placing the defective turret into it you can unlock the Scanned Alone Achievement/Trophy.

06 Now that you have taken away the threat of GLaDOS' turrets, Wheatley will try his hand at hacking once again on the door out of the Control Center so that you can continue. Once the door has been opened, go through and walk along the long section of catwalk until you come to the Employee Daycare Centre. Walk around the classroom until you come to the doorway on the right and then cross through it into the exhibition area, which is showcasing the science projects created by the children of former employees. Continue through the exhibition area until you come out onto the catwalk on the other side and then follow that along until you come to the door at the end which leads to the next area.

E3

The Neurotoxin Generator

07_037



01 After walking along the catwalk for a short while at the start of this area, you will come face to face with the last of GLaDOS' primary defense mechanisms, the massive Neurotoxin Generator [→☐ 04]. In order to disable it you will need to reach the control room far above your current location, so continue walking along the catwalks and go through the series of doors at the end.

02 On the other side of the doors, you will be in the room which the defective turrets were being thrown into, and you will also be able to see a beam being used to cut wall panels up above. Keep walking along the catwalk in this room and you will eventually come to a small elevator that you can step into and use to reach the upper part of the room.

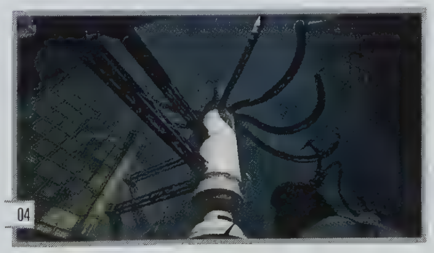
03 When you reach the upper catwalks, Wheatley will inform you that the door to the control room is currently locked, so you will need to find a way to open it. Walk along the catwalk until you come to a red button on the right side and then press it. Hitting the button will not only open the door, but also it cause the production line carrying the wall panels to stall and all of the panels will fall into the pit bellow.

Once Wheatley is inside the control room he will start looking for ways to disable the Neurotoxin Generator, but as usual, his schemes are not going according to plan. Now that none of the wall panels are obstructing the beam, you will notice that it is hitting a portalable surface; place a blue portal onto this wall where the beam hits it, and then go into the observation deck of the control room.

04 From the observation deck, you will be able to see small panels of portalable wall rising up along a rail in the far left corner of the room periodically. Wait for one of them to appear at the bottom of the rail and then fire an orange portal onto it so that the beam passes out of the portal. As the wall panel starts to rise, the beam will begin to cut through the pipes that are coming out from the left side of the Neurotoxin Generator. Severing these pipes causes the pressure levels in the Neurotoxin Generator to rise to dangerous, but not critical levels so you will need to cut the pipes on the right side as well to continue the buildup.

On the right side of the room, the wall panels are moving along the ceiling, but the same principles that you used on the left side still apply. Wait for one of the panels to appear at the back of the room and the reposition the orange portal onto it so that the beam can cut through the pipes as it passes by. With all of the pipes severed, the pressure levels will rise to uncontrollable levels and the Neurotoxin Generator will begin to implode and collapse.

The destruction of the giant machine will pull the section of tube out of the wall in the control room, and since the pressure levels were so high, everything will start getting sucked into it. As Wheatley says, you can ride the tube all the way to your next destination, so walk over to the control room to trigger the panels of glass to shatter, and you along with Wheatley will get sucked into the tube.


04

E4

Return to GLaDOS' Chamber

07_038

04/04

01 At the start of this area you will be traveling along one of the delivery tubes with Wheatley, you have no control over your movement at this time but you can still look around and take in the view while you travel through the facility [→☐ 01]. The tube does not carry you all of the way to GLaDOS, so once you are back on solid ground you will need to travel the rest of the distance on foot. Head up the stairs in front of you and then turn right along the corridor at the top and follow that along until you come to the precipice at the end.

From this vantage point, you can begin to take in the scope of just how massive the testing facility actually is, as you look out over testing chambers going on for miles. In the distance, you will see a light flicker on, lighting up a portalable area in the middle of the expanse; place a blue portal on the surface in the distance and then place an orange portal on the wall nearby and step through it.

02 After stepping through the portals, you will drop down into a room that has only a single door and no other apparent way out. Walk up to the door and try to open it, only to have it fall onto the floor, revealing the fact that it was just another trap set by GLaDOS. The walls of the room will literally start to close in around you until the room is just a fraction of its former size, at which time the floor will open up and you will drop down into a familiar glass chamber. [→☐ 02]

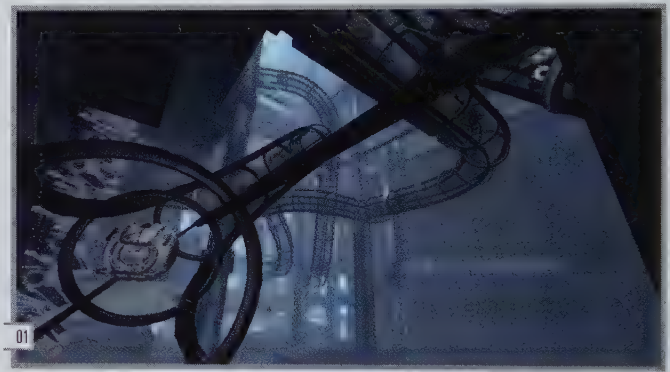
03 The glass chamber you are in will begin to move shortly after you drop into it and the wall ahead will part so that you finally come face-to-face with GLaDOS again. As is customary, she will start trying to kill you once the introductions are over by deploying a number of turrets around your chamber. Thankfully, she only has access to defective turrets because of the acts of sabotage that took place earlier on, and they will all start self-destructing when they attempt to fire.

Once GLaDOS notices that the turrets are not working, she will crash a tube through the chamber and attempt to kill you using her deadly Neurotoxin. The only thing that comes out of the tube, however, is Wheatley, fresh from his slight detour. The remaining glass in the chamber will shatter at this time and the facility will inform you that the system core, in this case GLaDOS, is currently 80% corrupt. Since another core is available now that Wheatley is in the chamber, the facility will initiate a core substitute operation and a suitable receptacle will rise up out of the floor.

04 Pick Wheatley up of the floor and carry him over to the core receptacle to place him onto it. Because GLaDOS and Wheatley cannot agree that a core replacement should take place, however, the operation will result in a stalemate. Thankfully, the operation can continue when there is a stalemate resolution associate in the area, and that is where you come in.

A large section of the chamber wall will open up and reveal a stalemate resolution button that can be pressed to end the stalemate and continue the procedure [→☐ 03]. Reaching the button, however, is not as easy as it appears to be. GLaDOS still has some control in the area and she has used her influence to create some defense mechanisms around the button. Directly in front of the room that the button is in are a number of large floor panels that will spring up when you get near them and knock you back. Also around the button, are a number of smaller floor panels that will rise up and form a defensive shield around the button when you get too close to it.

05 To get around the first obstacle, place a blue portal on portalable section of the floor just in front of the first trap and then place another one in the room with the button so that you can appear behind it [→☐ 04]. The panels for the second trap will each rise up as you get close to the button, and there is no way to walk around it fast enough to get round them. A much quicker method of travel is to use portals. Reposition your blue portal onto the wall opposite the one you are standing near and then step through the orange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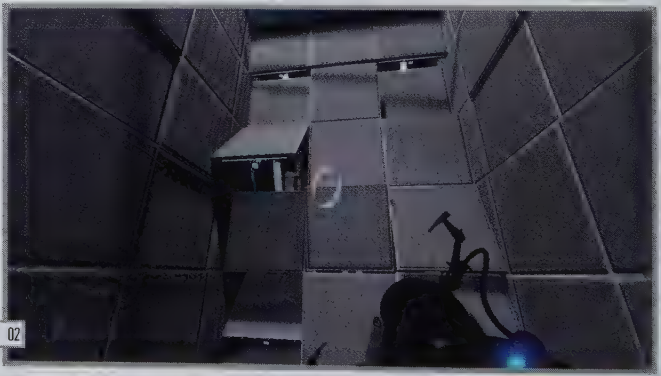
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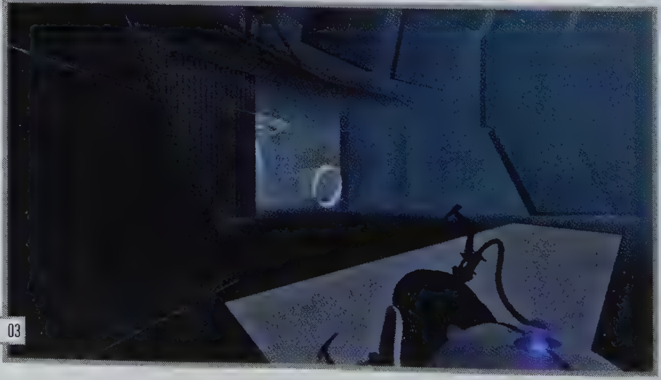
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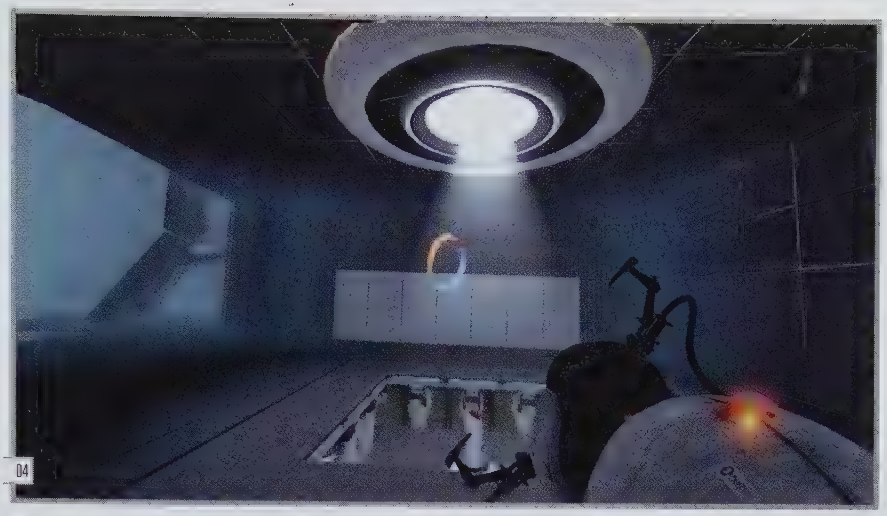
portal to the other side. Quickly close in and press the button before the panels can react to your presence and block it off.

06 As soon as you hit the button GLaDOS will lose all control over the facility and hang limp from the ceiling. After a brief conversation between GLaDOS and Wheatley, the core replacement procedure will continue and Wheatley will rise up triumphant and in control of the facility. Now that he has complete control, Wheatley can easily summon the escape elevator so that you can leave the facility, so once it arrives you will need to go over and step into it.

After some more celebrating, Wheatley will finally start the elevator moving and the last step of the escape will be underway… or so it would seem. After traveling a couple of meters, Wheatley will stop the elevator since he no longer feels that there is a need to escape. It seems that all of his newfound power is starting to go to his head and the disconnected GLaDOS only further antagonizes him.

To punish GLaDOS further, Wheatley picks up her core and transfers the central part of it onto one of the potato batteries [→☐ 05]. Even this does nothing to slow down GLaDOS' attacks on him, however, and Wheatley eventually can take no more and smashes the potato-bound GLaDOS through the glass and into the elevator with you, and then smashes the elevator down into a pit below.



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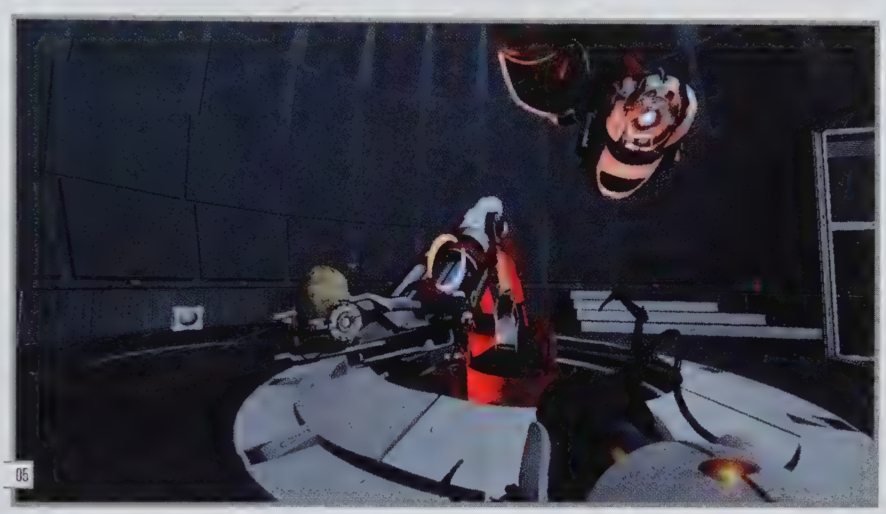
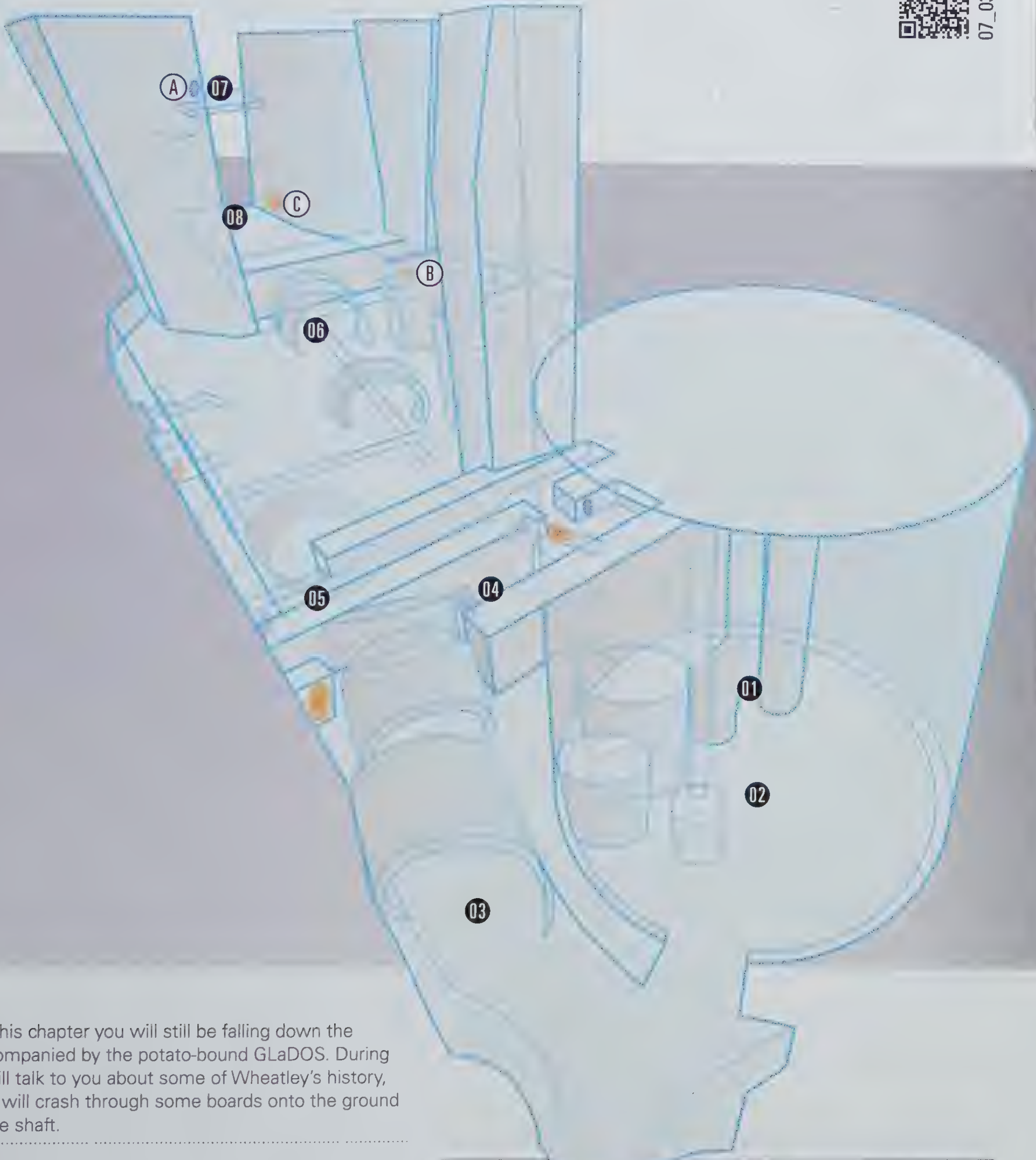


05

THE FALL

CHAPTER 06

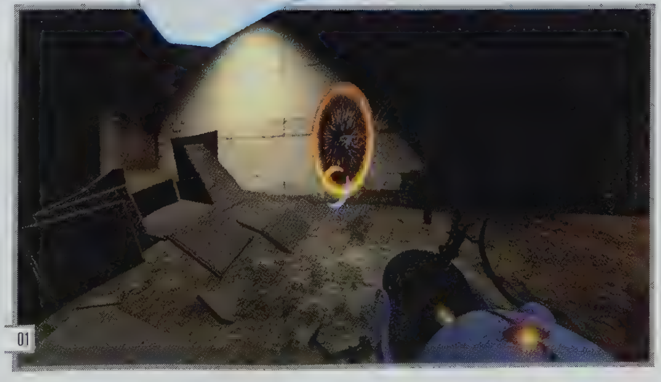
Bottom of the Pit



01 At the start of this chapter you will still be falling down the elevator shaft, accompanied by the potato-bound GLaDOS. During the fall GLaDOS will talk to you about some of Wheatley's history, and eventually you will crash through some boards onto the ground at the bottom of the shaft.

02 The first thing you will see when you come to your senses after the fall will be a bird flying off with GLaDOS, meaning you will need to find a way out on your own. Locate the large white pipes in the area and then walk behind them to find an opening that you can use to exit the shaft.

03 Follow the path around to the right, and then walk up the inside of a giant pipe until you come to a dead end. The way forward is on the other side of a mesh fence to the right of the dead end that you are unable to get past normally. However, there is a portalable section of the back wall on the other side of the mesh that can be used. Place a blue portal on that surface, then turn around, place an orange portal on the portalable wall on the left of the dead end and step through it. [→□ 01]



04 Once you are through the portals and on the other side of the mesh, look up to the left to see a portalable surface hanging above a ledge; reposition the orange portal onto that surface, and then step back through the blue portal on the wall so that you drop down onto the ledge. Turn to the left once you are on the ledge and walk through the opening in the wall; follow the path on the other side until you come to another fence blocking your way.

Aperture Information Service

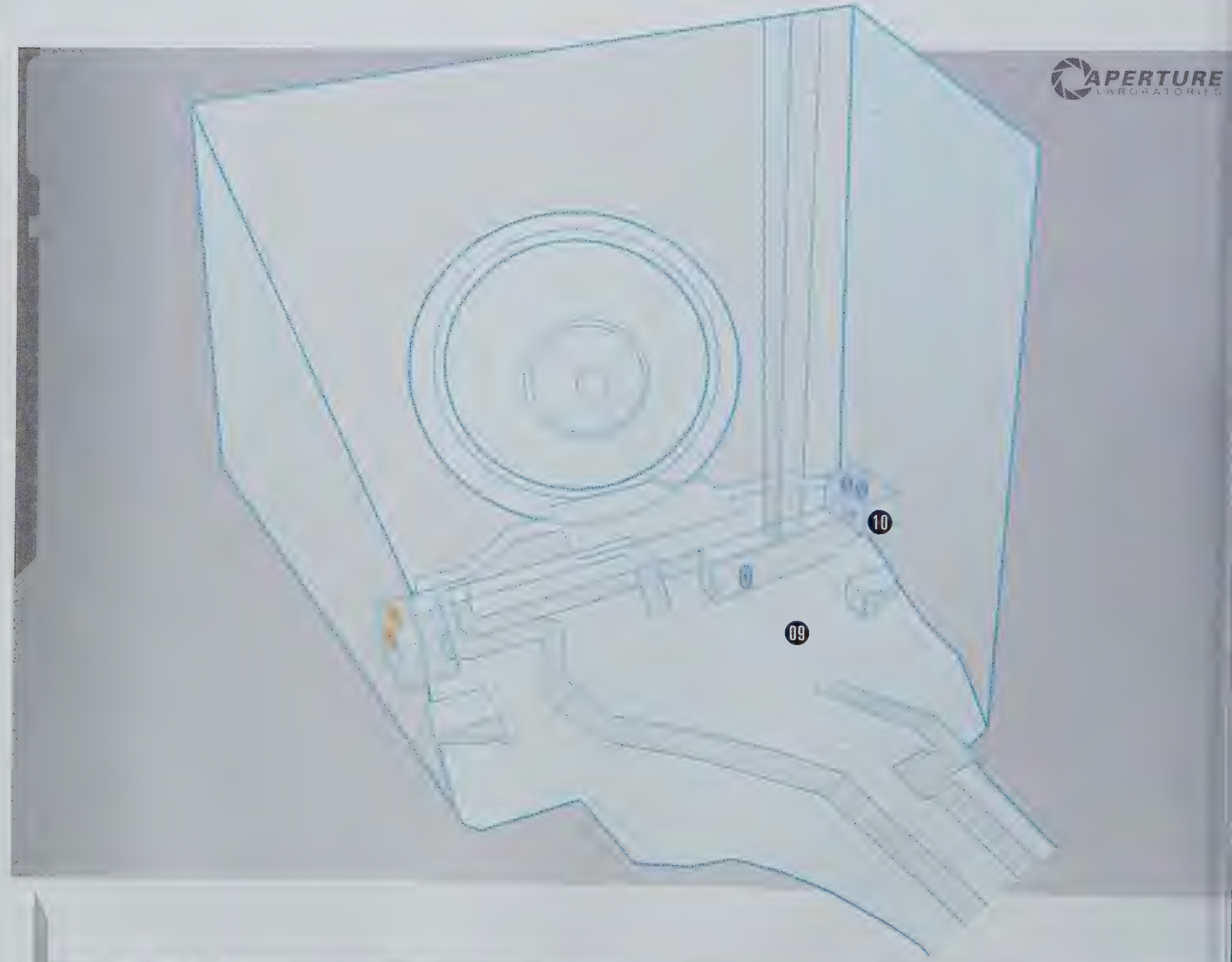
You can skip past a section of this area once you reach this ledge because it is actually possible to portal straight up to the area above the barricade. If you look out through the gap in the wall before you walk through it, you will be able to see the portalable section of wall above the barricade. Reposition your blue portal onto the wall above the barricade and then drop back down from the ledge to where you were before and step through your orange portal on the wall to reach the catwalk.

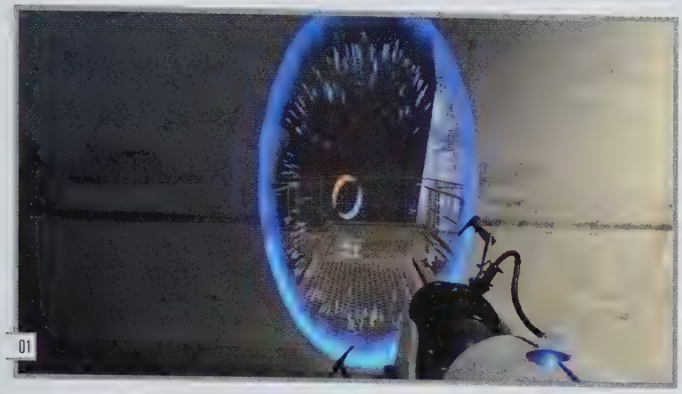
05 Place a blue portal onto the wall at the back of the path and then look to the right, past the mesh and try to locate a small section of portalable wall by a catwalk in the distance and place an orange portal onto it. Step through the blue portal so that you come out onto the catwalk and then from there drop straight down onto the narrow path below. Follow the path forward, and then up the ramp to the left until you come to the Condemned Testing Facility.

06 All of the normal entrances to the old testing facility have been sealed and warning signs telling you not to enter paint a foreboding picture of what is contained within it. Unfortunately, moving forward is the only option at this time and luckily, Portal Devices were not taken into consideration when the old facility was blocked off. Look high up to the left of the barricade and you will notice that a spotlight is illuminating a small portalable section of wall above a catwalk at Position A; place a blue portal onto this surface. Just to the right of the entrance there is a small alcove with another portalable section of wall at Position B; place an orange portal onto this wall and then step through it to reach the catwalk. [→☐ 01]

07 Follow the catwalk around to the left and then from this high vantage point you should be able to see a portalable section of wall down below, on the other side of the barricade at Position C. Reposition the orange portal to Position C and then step back through your blue portal at the top of the catwalk so that you end up back down at ground level on the other side of the barricade.

08 Dropping down from the small ledge you come out on into a dilapidated tunnel below. Follow the tunnel along and go up the staircase to a catwalk when you come to it, and then continue along that until you come to a closed gate. Pull the lever just to the left of the gate to open it and then go through the gate down to the area with a large sealed hatch. [→☐ 02]

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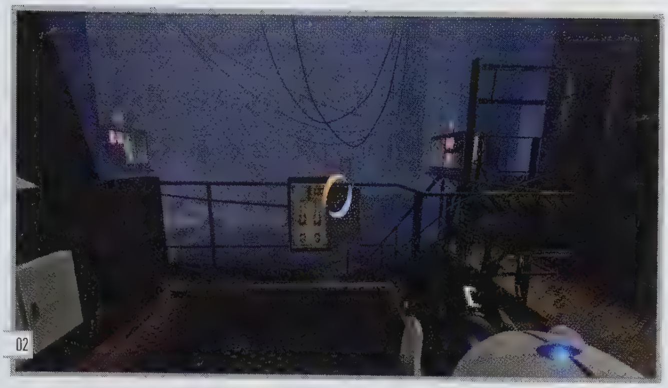
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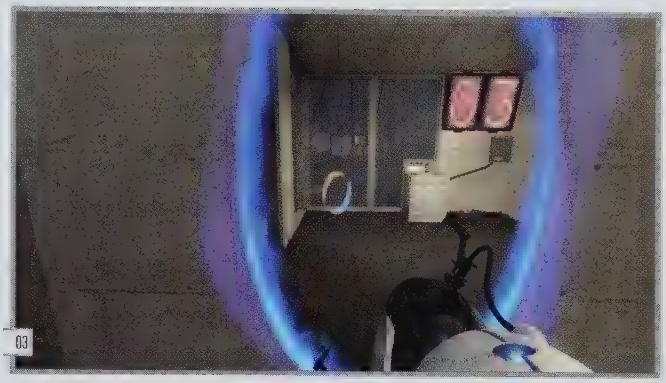
09 This large hatch was originally designed to be opened by two people pressing a switch simultaneously in each of the two control rooms to either side. Since there is only one of you, however, you will need to make use of portals to move between the controls rooms fast enough to still activate the switches in time. Place a blue portal on the wall near the bottom of the catwalk along which you entered the area and then place an orange portal on the wall above the catwalk near Control Room 1 to the left of the door.

Step through the portals so that you can drop down onto the catwalk and start walking towards the control room. Once you are near the top of the catwalk, look over to Control Room 2 and place a blue portal onto the portalable surface just to the left of it. Now enter Control Room 1 and reposition the orange portal so that it is on the surface inside the control room and then step through it.

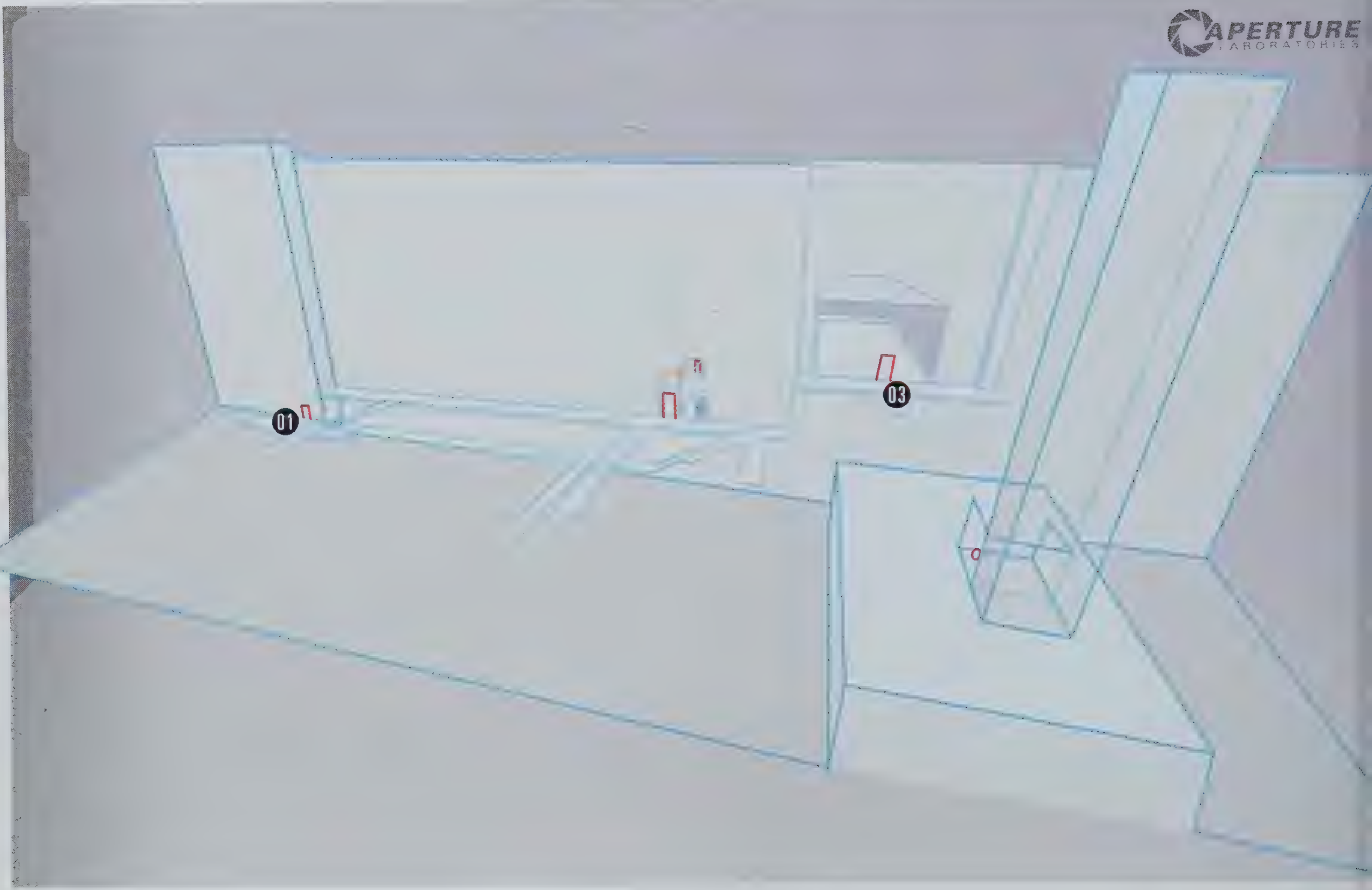
10 Walk up the catwalk into Control Room 2 and then reposition the blue portal so that it is on the surface inside the room. At this point you should have a direct route between the two control rooms through the portals [→☐ 03]. Press the switch in Control Room 2, and then step through the portals quickly and hit the switch in Control Room 1. You only have four seconds in which to hit the second switch, so even with a direct path you will need to quick. Activating both switches in time will trigger the hatch opening mechanism, which takes quite some time to complete.


03

Behind the large hatch you will be able to see a traditional sized door which is your way out of this area; in order to reach it, however, you will need to wait until the hatch has fully opened. The path along the catwalks that leads to the door is blocked on either side by safety gates that will not open until the hatch is locked into its open position. Once the gates are open, you will be free to continue along the catwalk and head through the door to the next area.

F2

Old Facility Foyer



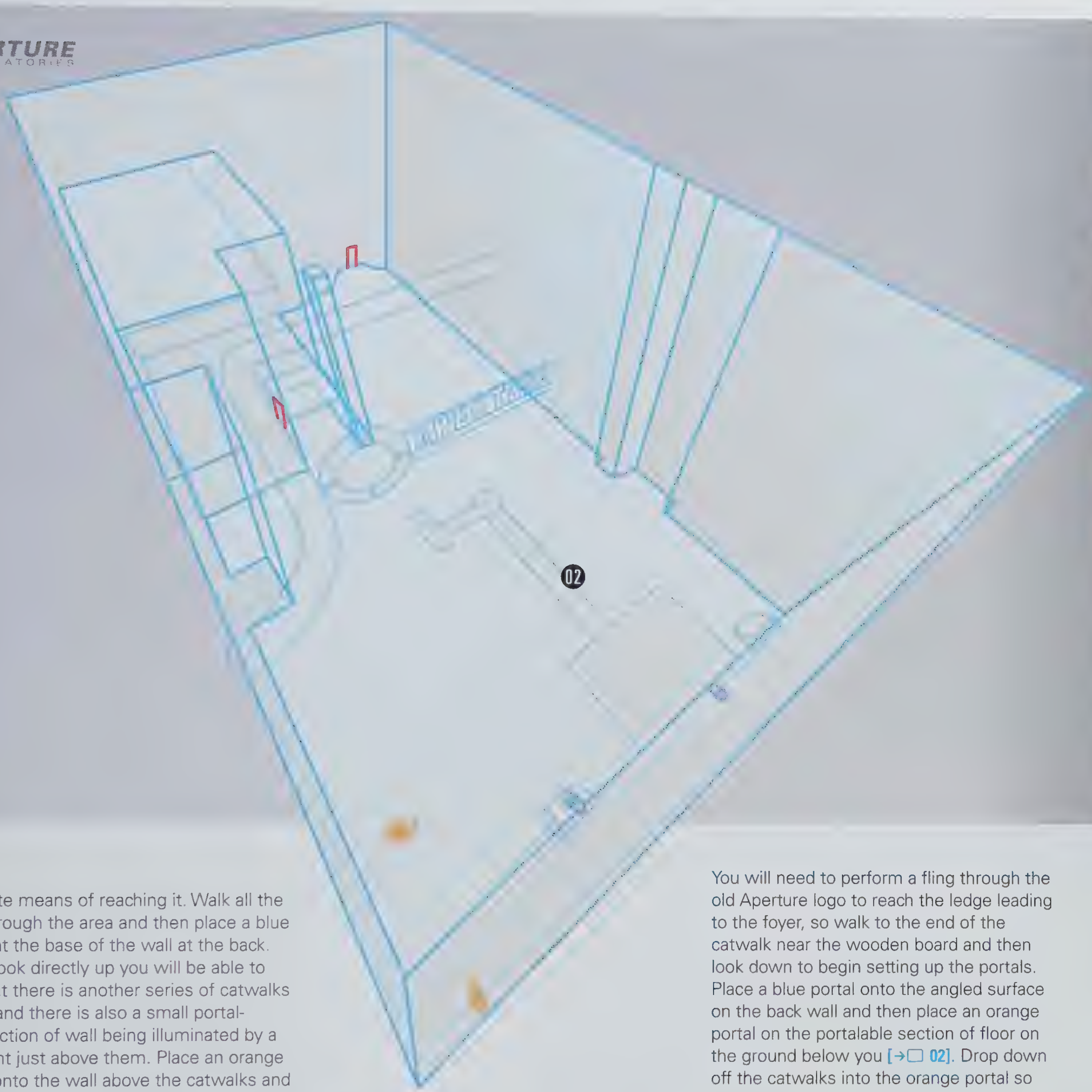
01 Step through the door in front of you when you start, and then follow the catwalk along to the left. As you come out of the small cave, the sheer scale of the whole cavern will begin to become apparent and remnants of the old testing facility can be seen all around the area. The most predominant feature of the cavern, however, is the large elevator tower that is rising up in the middle of the area.

Continue along the catwalk and go up the staircase to a walkway above once you come to it [→▢ 01]. Turn left and follow the walkway along the wall until you come to a door that has been partially forced open by the rubble on the other side. Place a blue portal on the wall next to the door and then look through the gap and place an orange portal on the wall on the other side. Step through the blue portal so that you come out into a corridor on the other side of the buckled door and then walk over and pull the lever to the left to open the next door.

Aperture Information Service

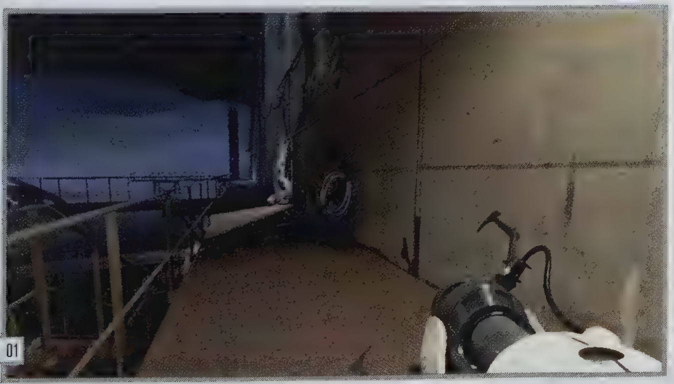
You can take a very large shortcut once you get to this area that will take you straight to the elevator tower. As soon as you get to the top of the staircase, turn left and then place a blue portal just above the spotlight on the wall. Place an orange portal just beneath it so that you can step into it but make sure you stop before passing through. While you are standing on the portal ledge, you are able to look over to the elevator tower and see just enough of the surface at the bottom of the tower so that you can reposition the blue portal onto it. Now when you step through the orange portal below, you will appear in the tower and can take the elevator straight up.

02 Go through the door and out into the original entrance to the old Aperture Laboratories. The actual path to the foyer has long since been destroyed by years of neglect so you will need to find an



alternate means of reaching it. Walk all the way through the area and then place a blue portal at the base of the wall at the back. If you look directly up you will be able to see that there is another series of catwalks above and there is also a small portalable section of wall being illuminated by a spotlight just above them. Place an orange portal onto the wall above the catwalks and then step through your blue portal to drop down onto them.

You will need to perform a fling through the old Aperture logo to reach the ledge leading to the foyer, so walk to the end of the catwalk near the wooden board and then look down to begin setting up the portals. Place a blue portal onto the angled surface on the back wall and then place an orange portal on the portalable section of floor on the ground below you [→▢ 02]. Drop down off the catwalks into the orange portal so that you fling out of the blue portal, through the logo and onto the next ledge.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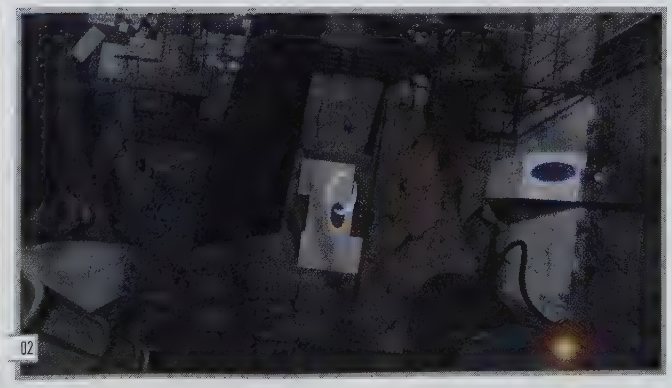
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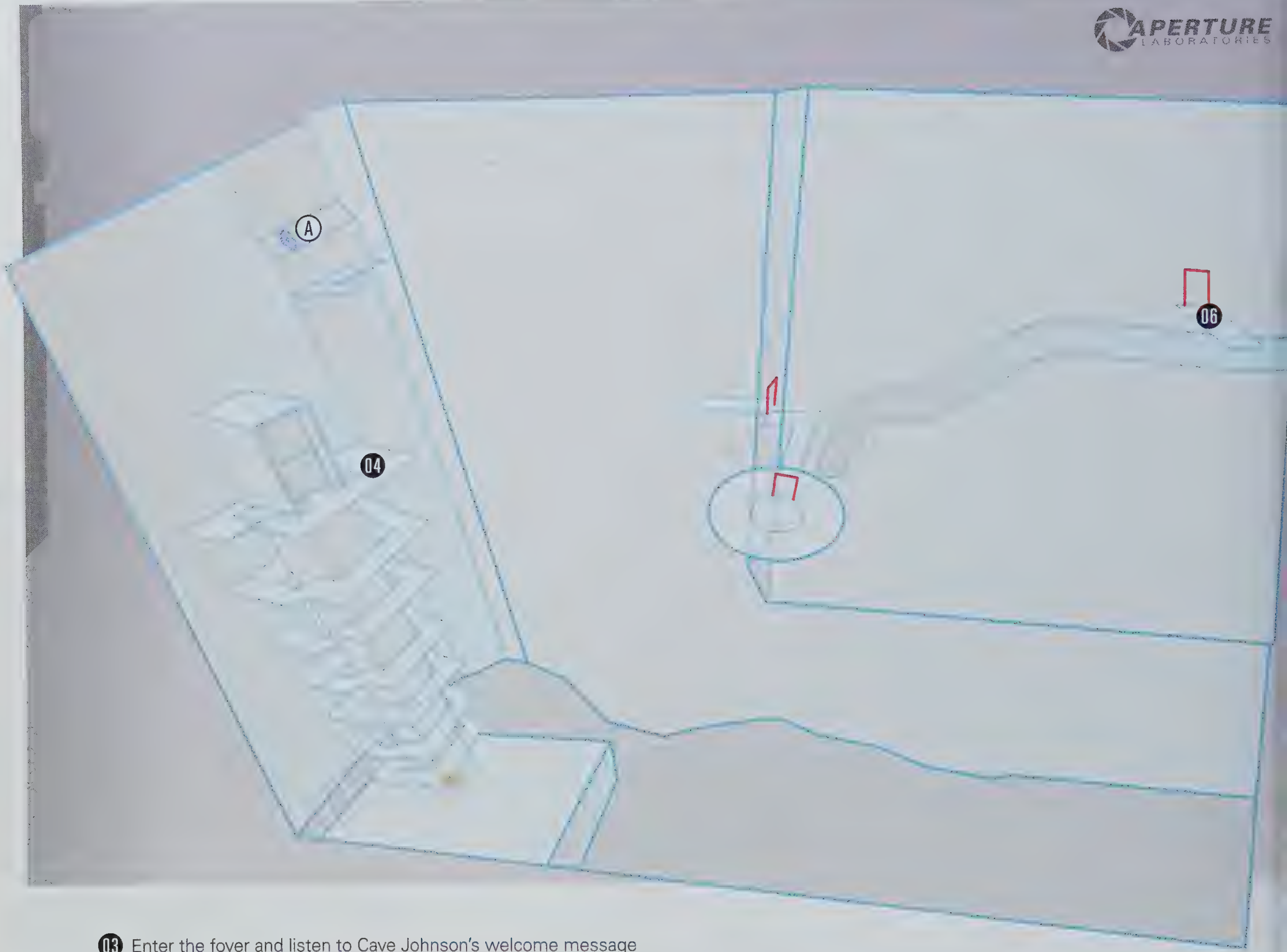
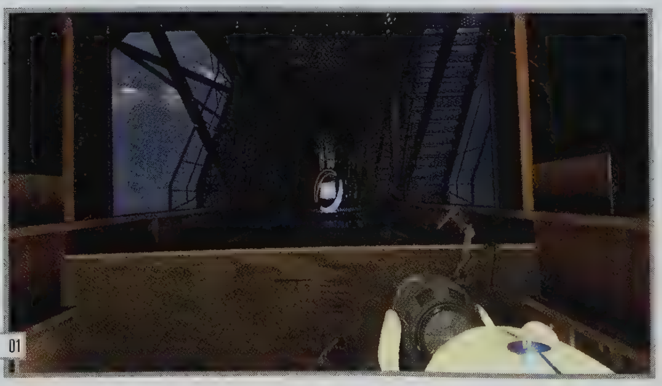


03 Enter the foyer and listen to Cave Johnson's welcome message while you walk through it and then head out of the door on the other side. Your destination at this time is a ledge up high that leads to the control room for Pump Station Alpha. Walk along the catwalk and jump off the broken end so that you can land on the platform near the base of the elevator tower, and then step into the elevator and press the switch to go up.

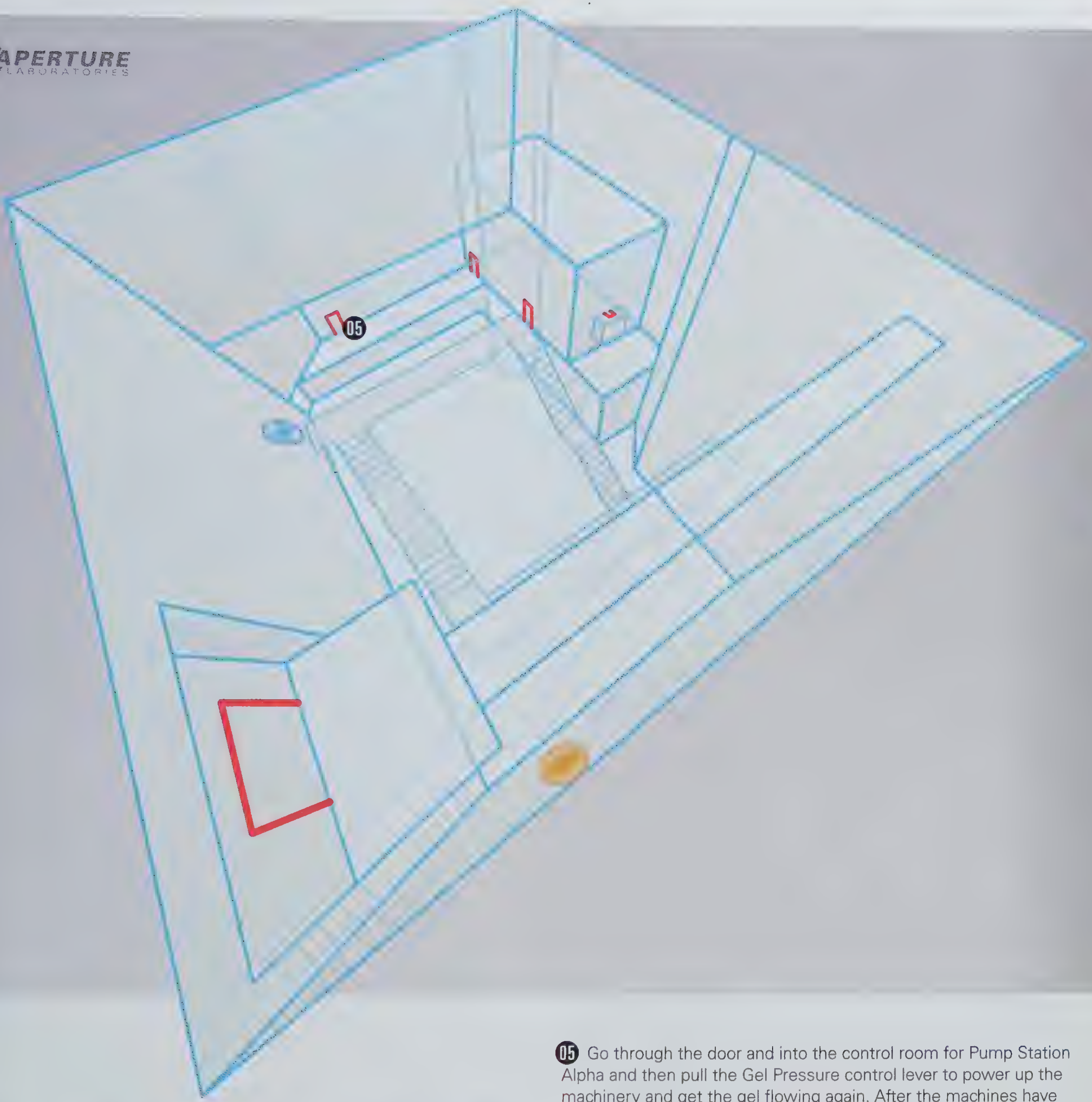
04 Once the elevator comes to a stop, head left around the catwalk, look for a small angled portalable surface being illuminated by a spotlight at Position A and place a blue portal onto it. In order to build up enough momentum to fling the correct distance out of the blue portal and reach the door to the control room you will need to drop from a great height and there is nothing higher than this elevator tower.

Turn around and follow the catwalk down one level and then look through the opening in the shaft down to the floor to reveal a portalable section of floor that was beneath the elevator [→☐ 01].


01

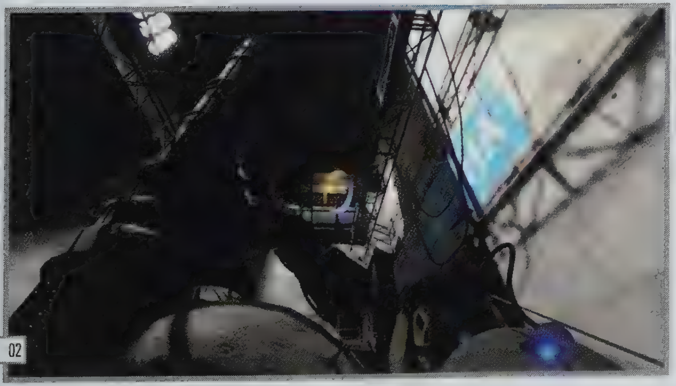
Aperture Information Service

The first three vitrified doors needed for Door Prize Achievement/Trophy can be reached from the top of the elevator tower, so players looking to get them all should not perform the fling down the elevator shaft straight away. Instead of placing a blue portal on the angled surface adjacent to the elevator tower, place it onto the flat part of the wall just below the angled surface. Now you can place an orange portal onto the surface to the side of the elevator tower and step through it to reach a new catwalk. From this catwalk, you can access all three of the doors and then after you have activated the intercoms near them you can simply go back through the portals and continue as normal.



05 Go through the door and into the control room for Pump Station Alpha and then pull the Gel Pressure control lever to power up the machinery and get the gel flowing again. After the machines have finished powering up, the gate leading out of the control room will open up and you will be able to walk through it into the pump area. The way out of the area is up high on another catwalk to the left; place a blue portal on the wall opposite the gate, and then look up to the left to see another portalable section of wall above the high catwalk and place an orange portal onto that. [→◻ 02]

06 Step through the blue portal so that you come out on the high catwalk and then follow it along to the left until you come to the end of it. Since the rest of the catwalk has been destroyed, you will need to take a different path to the elevator. Look for the broken section in the railing on the right and walk through it and onto the large gel pipe. Follow the pipe along and then jump off when it turns down so that you can land on the catwalk extending from the elevator platform. Once you are on this catwalk, simply walk through the Emancipation Grill and take the elevator to Pump Station Alpha.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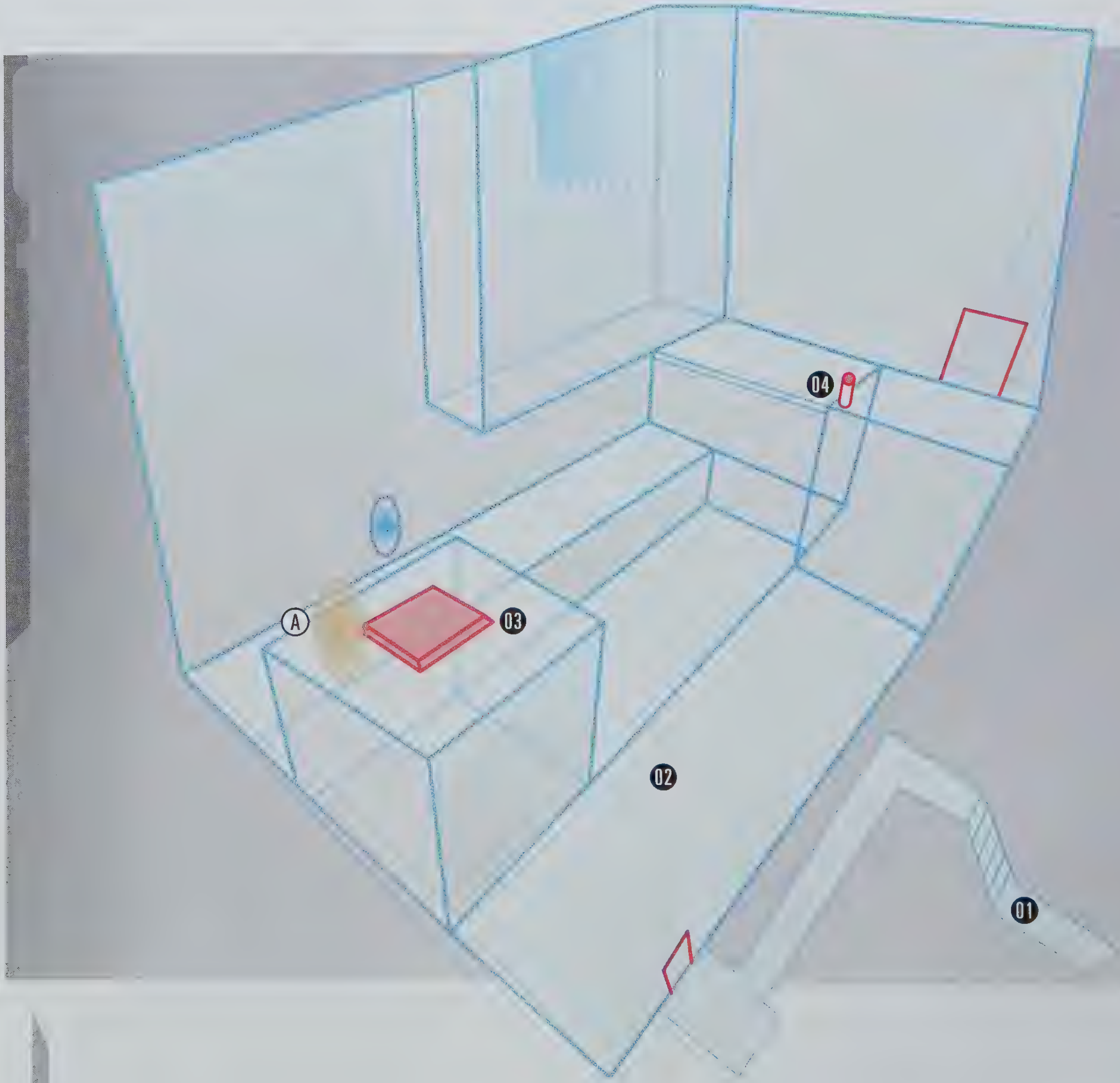
Alpha Enrichment Sphere 01 – A

Most of the tests in Pump Station Alpha revolve heavily around the use of Repulsion Gel, which as its name implies, repels anything that it comes into contact with. This means that if you jump onto it, or even touch it, you will bounce off which ever surface it was on. Like with portals, the momentum you have when you hit Repulsion Gel directly dictates how far you will bounce off it when you touch it, so the faster you are traveling when you hit it, the further you will go afterwards.

If at any time you need to stop bouncing to regain control over the direction you are heading, simply hold down the Crouch button and you will come to a stop. The aim of this test is to reach the top of the chamber and acquire a cube to place onto the button that opens the exit. To accomplish this you will need to make use of the Repulsion Gel to bounce between ledges.



01 Once the elevator comes to a stop, it will open into a large room with a catwalk straight ahead. Wait for all of the lights to power up, and then follow the catwalk along and go through the Emancipation Grill at the end into the first testing area.

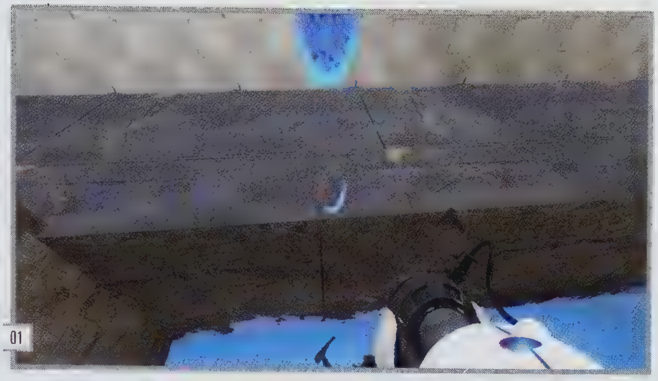
02 When you enter the first test area you will see a shallow pit in the middle of the room, which has been coated with Repulsion Gel, as the small sign to the side of the pit indicates. If you jump into the pit the Repulsion Gel will enable you to bounce across to the other side [→☐ 01]. After crossing the pit, place a blue portal on the wall next to it and then look up and place an orange portal up by a ledge at Position A.

03 Step through the blue portal so that you come out onto the high ledge and you will immediately notice the large button on the floor that controls the exit door on an adjacent ledge. There is a Cube Dispenser on the ceiling of this room, but the switch to operate it is on the opposite ledge near the exit door. Jump down off the ledge into the pit below again, and this time because of your extra momentum, you will have enough height on the bounce to make it over to the switch.

04 If you simply let the cube fall after hitting the switch, it will bounce off the Repulsion Gel and could land anywhere. A much better way of securing it is to press the switch and then jump into the pit straight away and catch the cube as it is falling. If you catch the cube as it is falling, your momentum should take you straight back up to the ledge with the button and you can place the cube straight onto it [→☐ 02]. If you miss the cube on the way down it just means that you will need to find it once it stops bouncing and then repeat the earlier steps to get back up to the ledge with the button. Once the cube is securely on the button, all you need to do is jump back off the ledge, bounce over to the exit and go through the Emancipation Grill.

05 As you start to walk up the staircase on the other side of the Emancipation Grill, look up slightly so that you can see three small portalable sections of wall and then place a blue portal onto the one on the right. Continue walking up the stairs after placing the portal and follow it round to the left; here you will find another portalable surface that you can then place an orange portal onto.

06 Step through the orange portal to drop down onto a walkway below the blue portal, and then follow that along to the left until it comes to an end and jump off it onto another catwalk below. Follow the catwalk along up the stairs and then go through the Emancipation Grill into the next testing area.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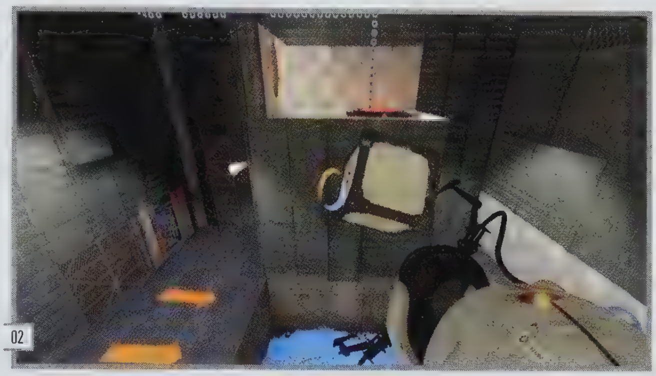
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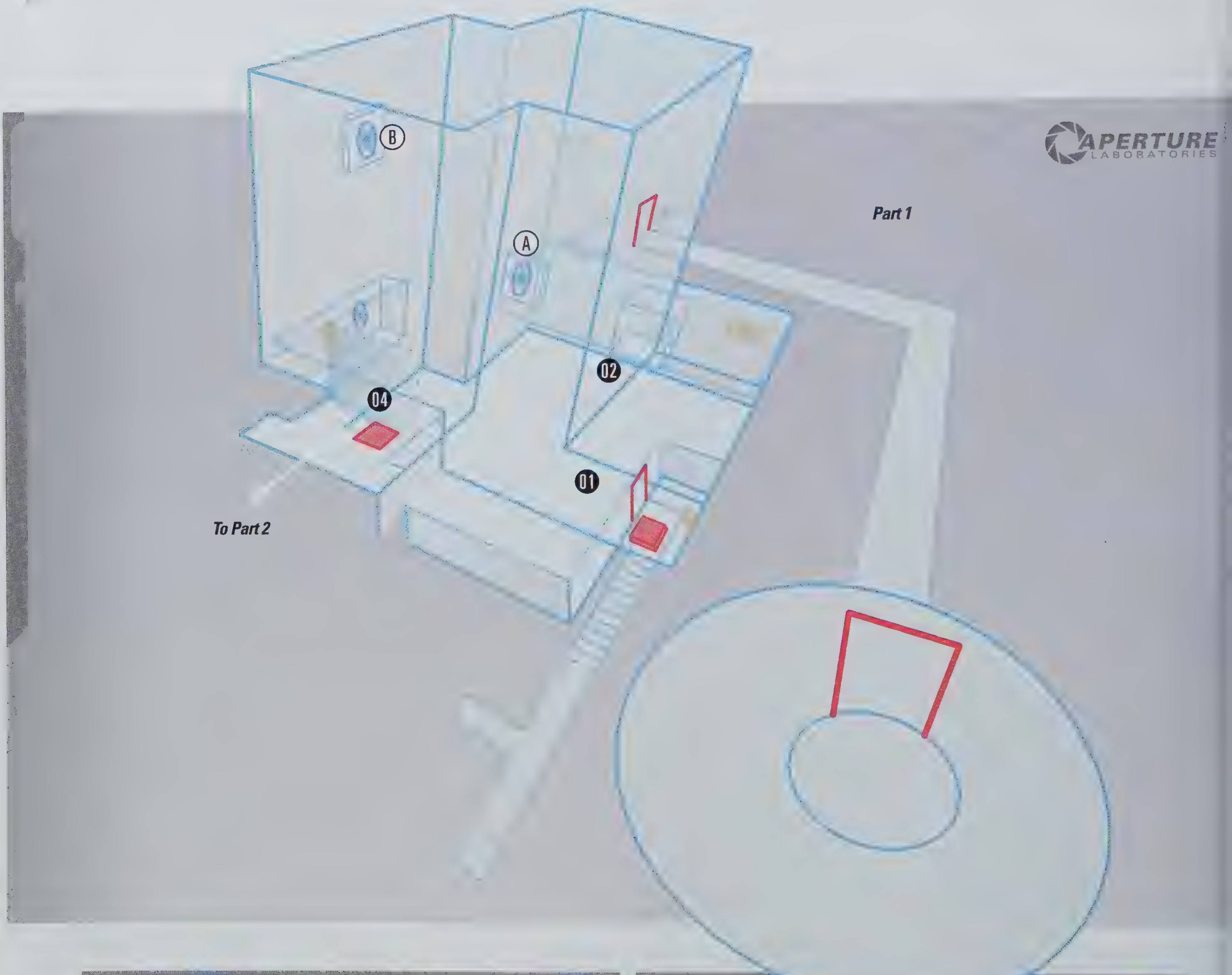
Alpha Enrichment Sphere 01 – B

The aim of this test is for you to find a way of using the Repulsion Gel to reach the exit at the top of the chamber. To accomplish this you will need to use the Repulsion Gel to cross large areas of the chamber, acquire the cubes and then use portals to create the extra height needed to make the jumps.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APERTURE LABORATORIES
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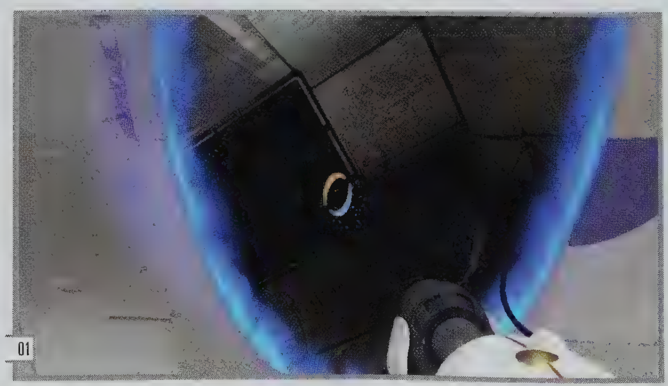
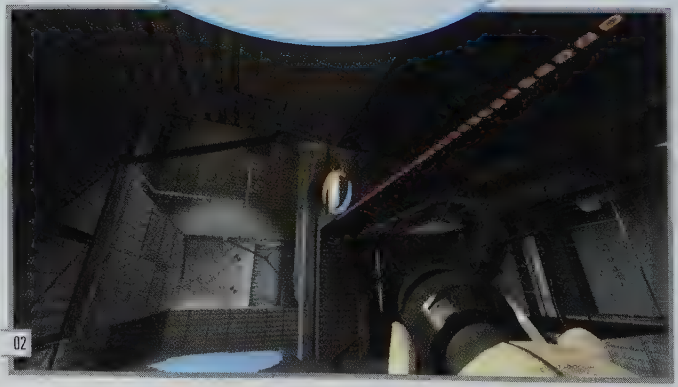




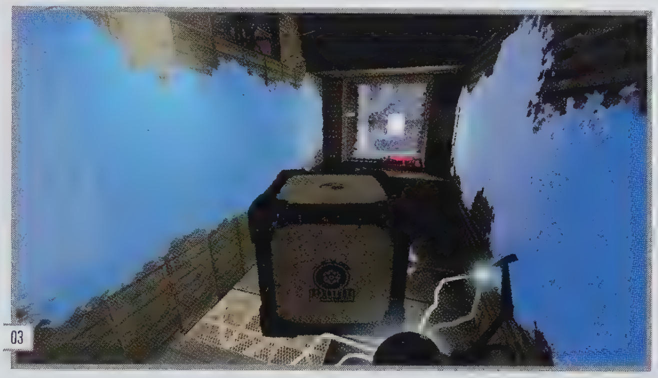
01 Place a blue portal on the wall of the alcove at the back of the area, and then turn to the right and place an orange portal on the portalable sections of ceiling above the moving platform. Walk over to the pool of Repulsion Gel in front of the ledge near your blue portal and use it to jump up to the ledge. Look through the blue portal so that you can watch the area below the orange portal, and then when you see the moving platform start to pass beneath it, step through so that you drop down onto it. [→☐ 01]

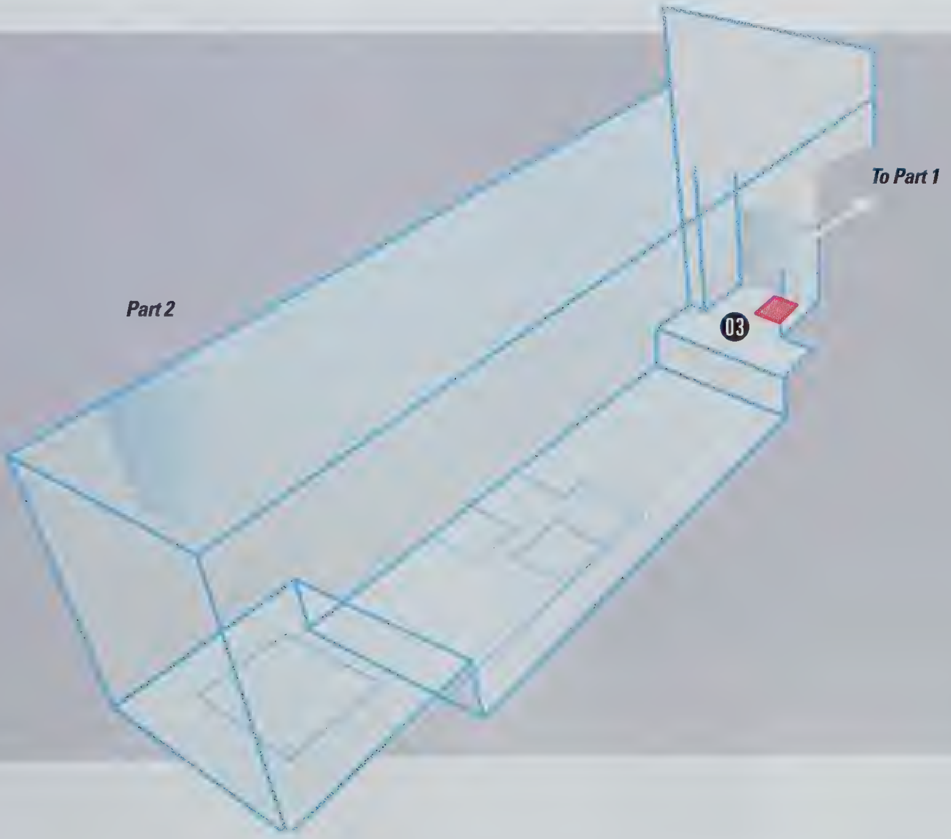
02 Stay on the platform until it is in line with the alcove containing the cube, and then jump across into the alcove and pick up the cube. Drop back down with the cube and reposition your orange portal onto the wall above the entrance near the button. Use the Repulsion Gel to reach the ledge near your blue portal again so that you can step through it and come out on the opposite ledge.

Place the cube onto the button so that the panel on the wall up to the right flips around to reveal a portalable surface, and then reposition your blue portal onto it at Position A [→☐ 02]. Jump back through your orange portal on the wall to ensure that when you bounce off the Repulsion Gel below, you will have enough height to reach the entrance to the adjoining room.

03 At the front of this room there is another button on the floor that is used to control a second rotating wall panel up high at the back of the room. The cube you need to hold the button down can clearly be seen on the other side of a shallow pit, but this time there is no Repulsion Gel on the floor for an easy jump up there. The side walls in this room have been coated with Repulsion Gel, however, and you can use them to create an unorthodox means of transportation. Jump diagonally at one of the walls so that it bounces you off towards the other side, and if you hold forward during the bounce, you are able to gain some forward progress. Keep holding forward while bouncing between the walls until you reach the other side and then pick up the cube and use the same method to come back to the entrance [→☐ 03]. Place the cube onto the button and then step back through the Emancipation Grill into the main part of the room.

04 Place a blue portal on the freshly revealed surface up to the left at Position B and then drop back down to the floor below. Place an orange portal on the wall at the back of the alcove near the Repulsion Gel pool and then use the gel to jump up to the ledge. Jump through your orange portal and hold forward as you fall to make sure that you have enough forward momentum to carry you over to the exit platform after bouncing off the Repulsion Gel. Once you are on the platform, walk through the Emancipation Grill and follow the catwalk along to the elevator at the end and then step into it to move to the next test.

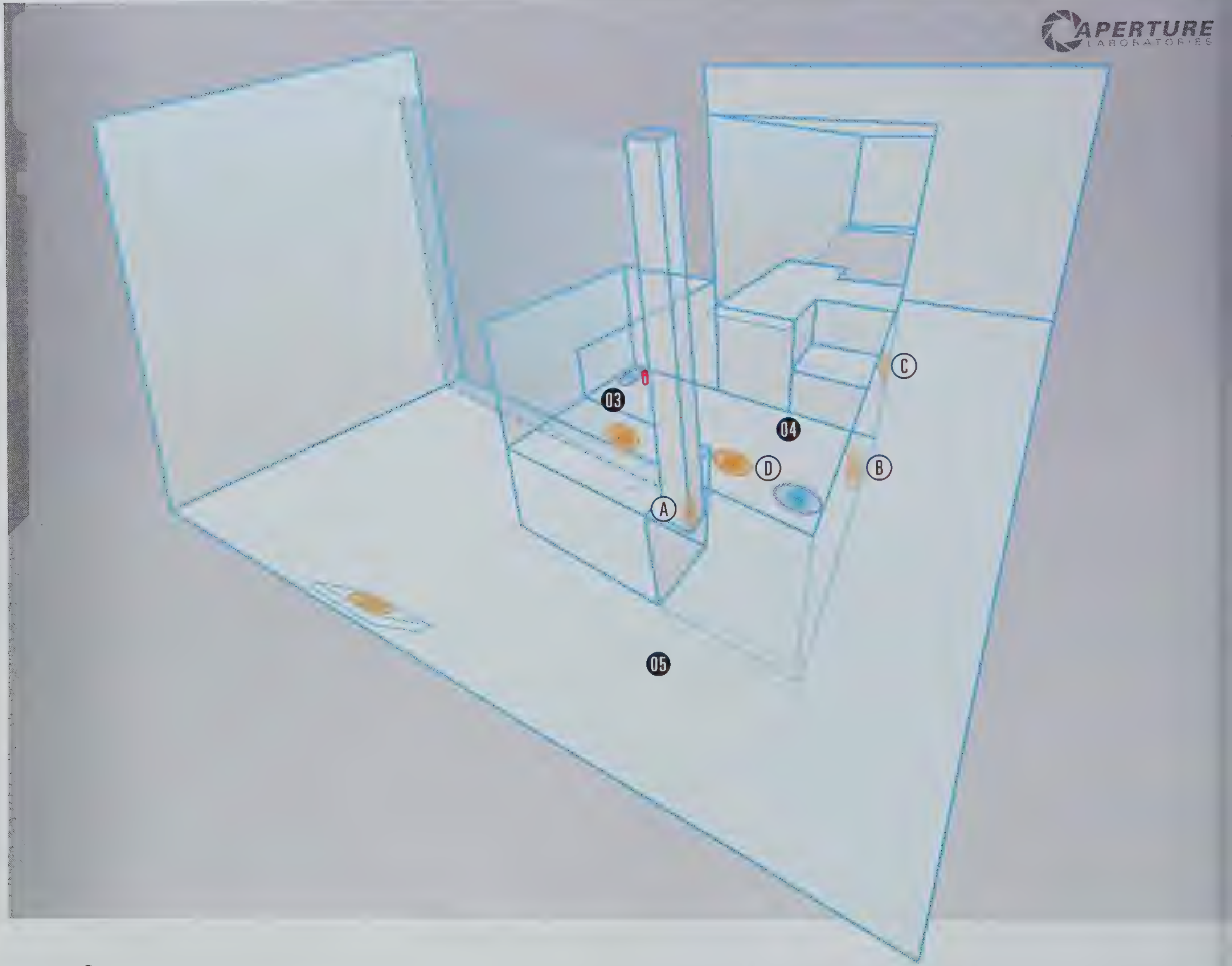




Alpha Enrichment Sphere 02

The aim of this test is simply to find a way across the chamber to the exit on the other side. To accomplish this, however, pools of Repulsion Gel will need to be strategically placed around the chamber to extend the distance that you are able to jump.

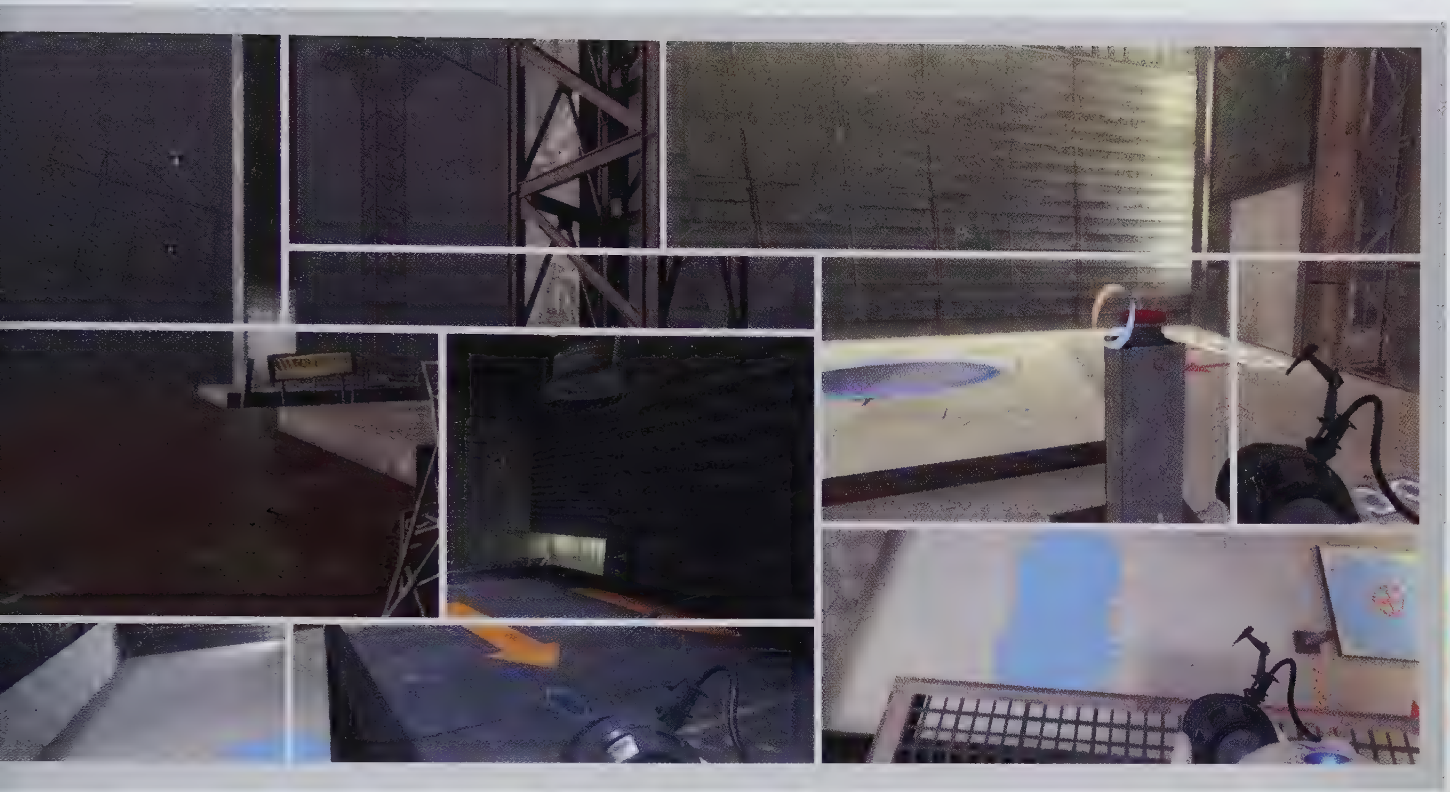
07_043



01 The catwalk leading directly to the next testing area has collapsed over the years, so you will need to take a slightly more scenic route to reach it. Drop down from the broken end of the catwalk after stepping off the elevator and then use the twisted metal support beams as a makeshift bridge so that you can cross the moat.

02 The catwalk you need to reach is high above this area so place a blue portal on the the base of the central column and then look up high to the right and place an orange portal at near the broken section of catwalk [→□ 01]. Step through your blue portal onto the catwalk, and then look across the area into the test chamber and reposition the blue portal onto the floor of it. Now you can step back through your orange portal so that you come up out of the blue one into the test sphere.

03 Place a blue portal on the slightly raised section of floor beneath the gel pipe, and then place and orange portal onto the wall to the right at Position A. Walk over and press the switch to start the gel flowing, but unlike other pipes, this one will merely open enough to cause a drip, rather than a constant flow. Wait for one of the drops to pass through the portal so that it splashes onto the floor, and then reposition the orange portal onto the wall at the back corner of the room at Position B.



Once another drop has passed through and splashed onto the ground, reposition the orange portal again so that it is on the wall of the ledge at Position C and wait for a drop of gel to pass through. For the final step in this area, reposition the orange portal one last time so that it is in the middle of the floor at Position D. Wait for a drop of gel to pass up through the portal and then while it is in mid-air, move the orange portal to any other surface so that the gel can hit the floor.

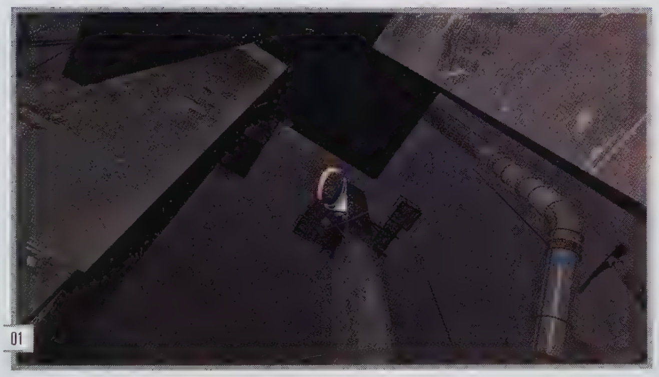
04 Walk over to the pool of gel you created near the ledge and use it to jump up onto the ledge, and then use the pool there to reach the platform above. From this position, you will be able to see the exit, but there is no gel correctly positioned at this time to let you make the jump across the chasm. Turn around, face the ledges on the opposite side of the room, and reposition the orange portal so that it is on the floor just in front of the Emancipation Grill. [→☐ 02]

As before, wait for a drop of gel to pass through the portals and then reposition the orange one so that it can splash onto the floor. If the earlier pools of gel were positioned correctly, you should now be able to jump off this platform, bounce off a pool of gel below onto the opposite ledge, and then bounce again cleanly through the Emancipation Grill.

05 Place an orange portal onto the angled surface behind the grill and then walk around the ledge until you can have a clear line of sight down to the gel pipe and place a blue portal on the floor beneath it. Now when a drop falls through the portals it will get flung across the room and land just in front of the chasm.

The only thing left to do before attempting the jump is to create some momentum, so look down over the ledge and reposition the blue portal onto the floor below you. Jump down through the blue portal, once it is in place, so that you fling out of the orange portal with enough speed to bounce off the gel near the chasm and then travel safely over it. Once you land on the other side, walk along the catwalk and take the elevator at the end up to the next area.

01



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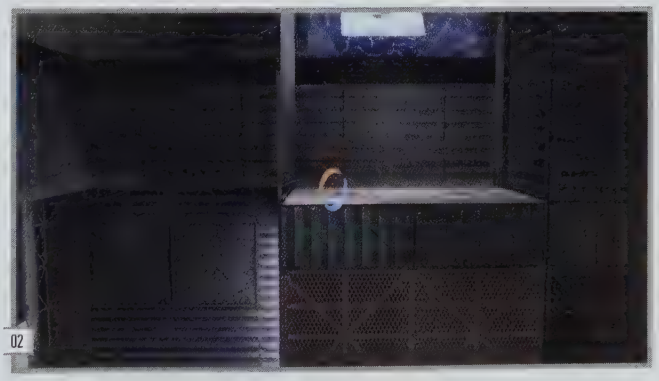
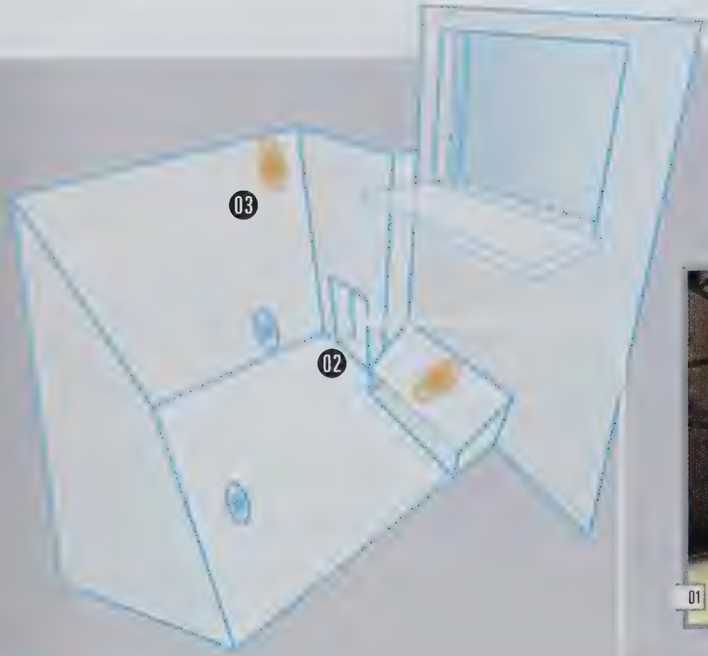
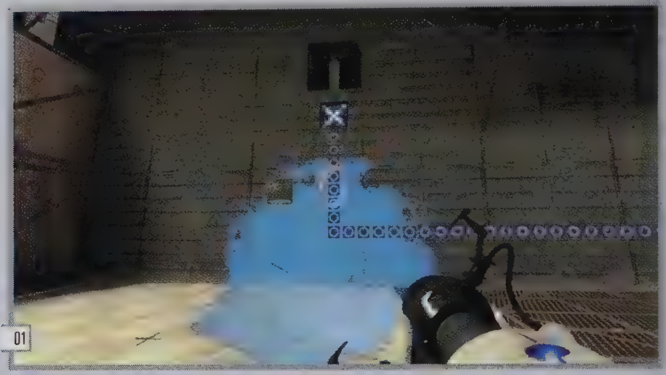


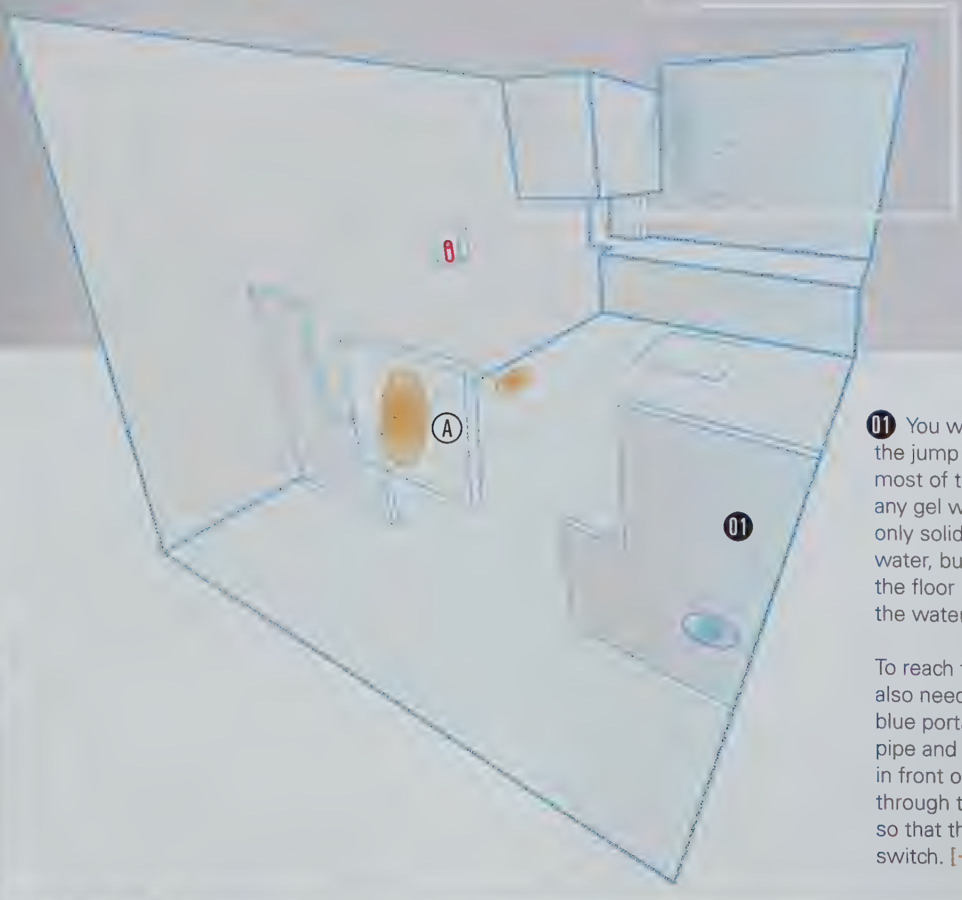
Alpha Enrichment Sphere 03 – A

07_044

The aim of this test is to initially find a way past the flowing water and then find a way up the tall shaft to the exit. To accomplish this you will need to first stem the flow of water and then use Repulsion Gel in conjunction with portals to create a fling that will take you to the exit.







01 You will need to use Repulsion Gel to make the jump to ledge near the exit, but unfortunately, most of the floor around the ledge is a mesh, so any gel will simply pass straight through it. The only solid section of floor is directly beneath the water, but if you attempt to get Repulsion Gel onto the floor beneath the water while it is still running, the water will just wash it away.

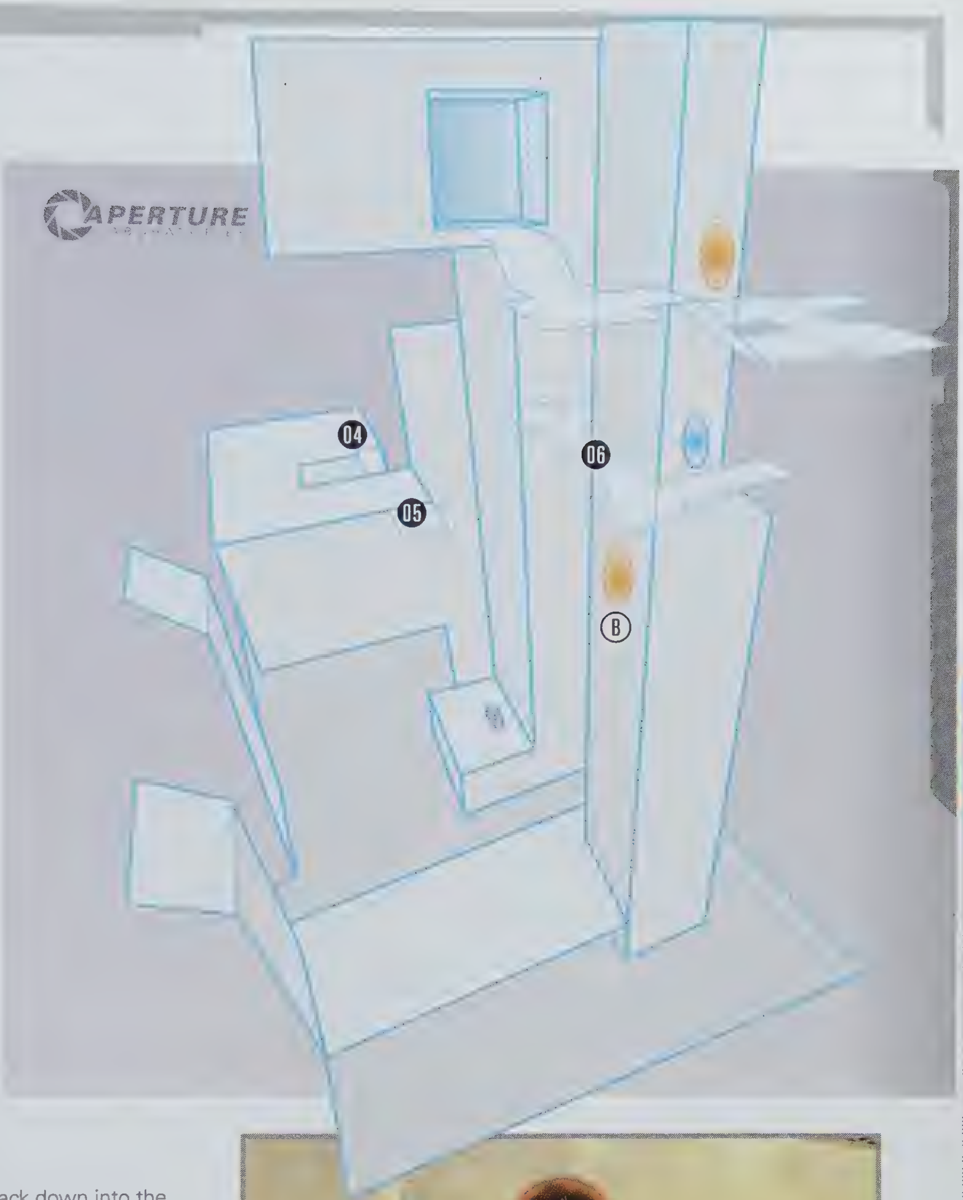
To reach the switch controlling the water you will also need to make use of Repulsion Gel. Place a blue portal on the floor beneath the dripping gel pipe and then place an orange portal on the floor in front of the switch. Wait for a drop of gel to pass through the portals, and then move the orange one so that the gel splashes down on the floor by the switch. [→□ 01]

The switch only turns off the water for a few seconds, so to save time, you should to reposition the orange portal to Position A, so that the Repulsion Gel is flying out of it and onto the floor beneath the water. Now when you jump up and activate the switch you do not have to worry about placing any portals and can simply walk over and wait for the gel to hit the floor and then quickly jump up before the water resumes.

02 The next part of the test begins immediately after passing through the Emancipation Grill and similar to the first part, you will see a dripping Repulsion Gel pipe in the middle of the room. Place a blue portal onto the bottom of the wall to the right and then follow that section of wall up and place an orange portal at the top of it.

03 Step through the blue portal so that you drop down onto the metal support beam at the top and then look down to the area below. Reposition the blue portal so that it is beneath the dripping gel pipe and then place an orange portal on the angled surface to the left, just below the ledge by the exit.

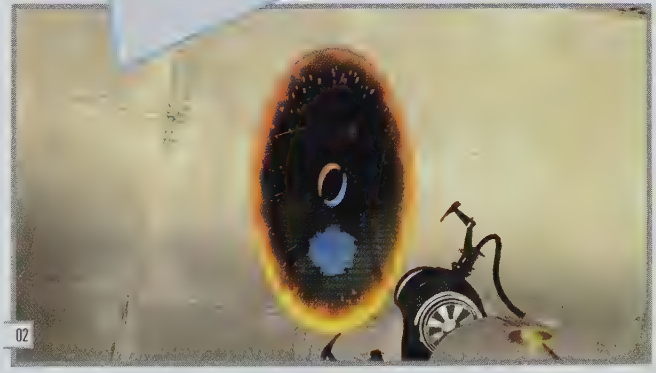
Wait for some of the gel to pass through the portal and splash onto the wall, and then reposition the blue portal onto the floor down below [→☐ 02]. Jump down from the beam and through the portal so that you fling out of the orange portal straight onto the patch of Repulsion Gel on the wall. The Repulsion Gel will bounce you off, back to the other side of the room and through the Emancipation Grill by the platform.



04 From this position, you will be able to see back down into the first testing area and you should place a blue portal beneath the dripping gel pipe. Once the portal has been placed, walk across the area and go up the staircase to reach a slightly higher ledge, and follow that along until you reach a small mesh platform.

05 The catwalk you need to reach is up high directly in front of this platform, but you will need to create a means of reaching it. Place an orange portal onto the wall at Position B, so that the gel flies out of it and onto the angled surface of the column to the right. Once the gel has covered the surface, reposition the blue portal so that it is on the floor beneath the platform and then jump off into it [→☐ 03]. You should now fling straight out of the portal and hit the patch of Repulsion Gel and get bounced up to the catwalk you needed to reach.

06 Walk around to the left of catwalk until you come across a portalable section of wall and place a blue portal onto it. The next section of catwalk you need to get to is above the one you are currently on, so follow the wall up from your blue portal and place an orange portal as high as it can go. There is a large gap between the orange portal and the catwalk, so you will need to jump through the blue portal in order to reach it. Once you land on the catwalk, follow it along and go through the Emancipation Grill at the end to the next testing area.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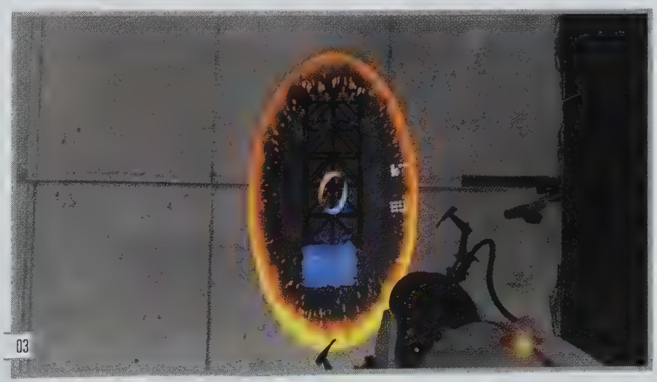
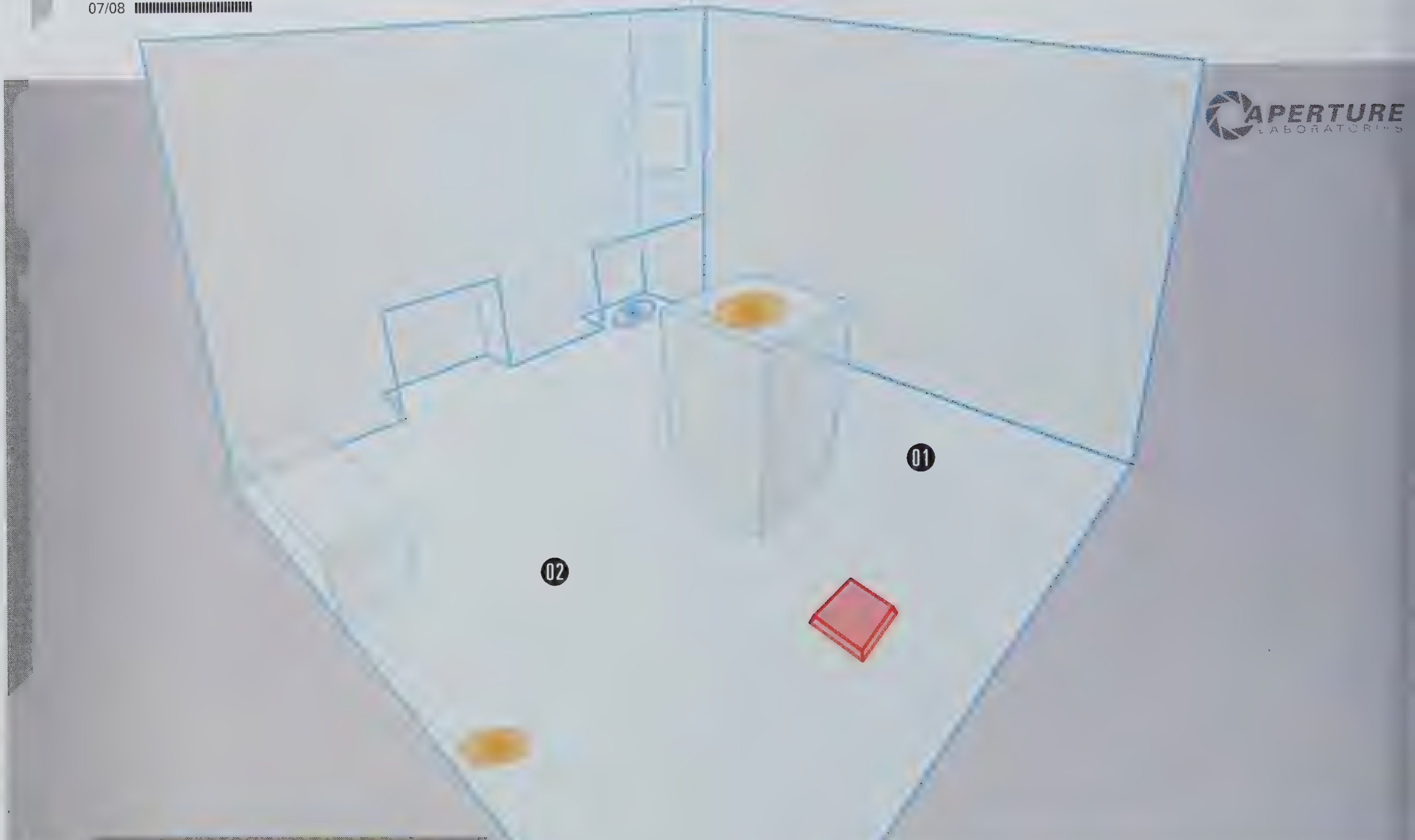

03

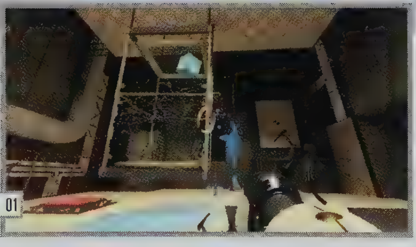
F7

Alpha Enrichment Sphere 03 – B

The aim of this test is for you to find a means of controlling the moving platform so that you can reach the exit. To accomplish this you will need to first find a way of getting the cube out of its glass housing and onto the button and then get it back off the button.

07_045





01 Place a blue portal on the floor beneath the Repulsion Gel pipe, and then place an orange portal on the ceiling above the glass chamber. This will cause the Repulsion Gel to flow down onto the cube, causing it to start bouncing around uncontrollably with enough force to smash through the glass [→☐ 01]. The cube will continue to bounce around the room so try to get close to it and catch it. While the cube is covered in Repulsion Gel you will be unable to place it onto the button, so carry it over to the water pipe and use the water to wash the gel off. Once the cube has been cleaned, walk over and place it onto the button.

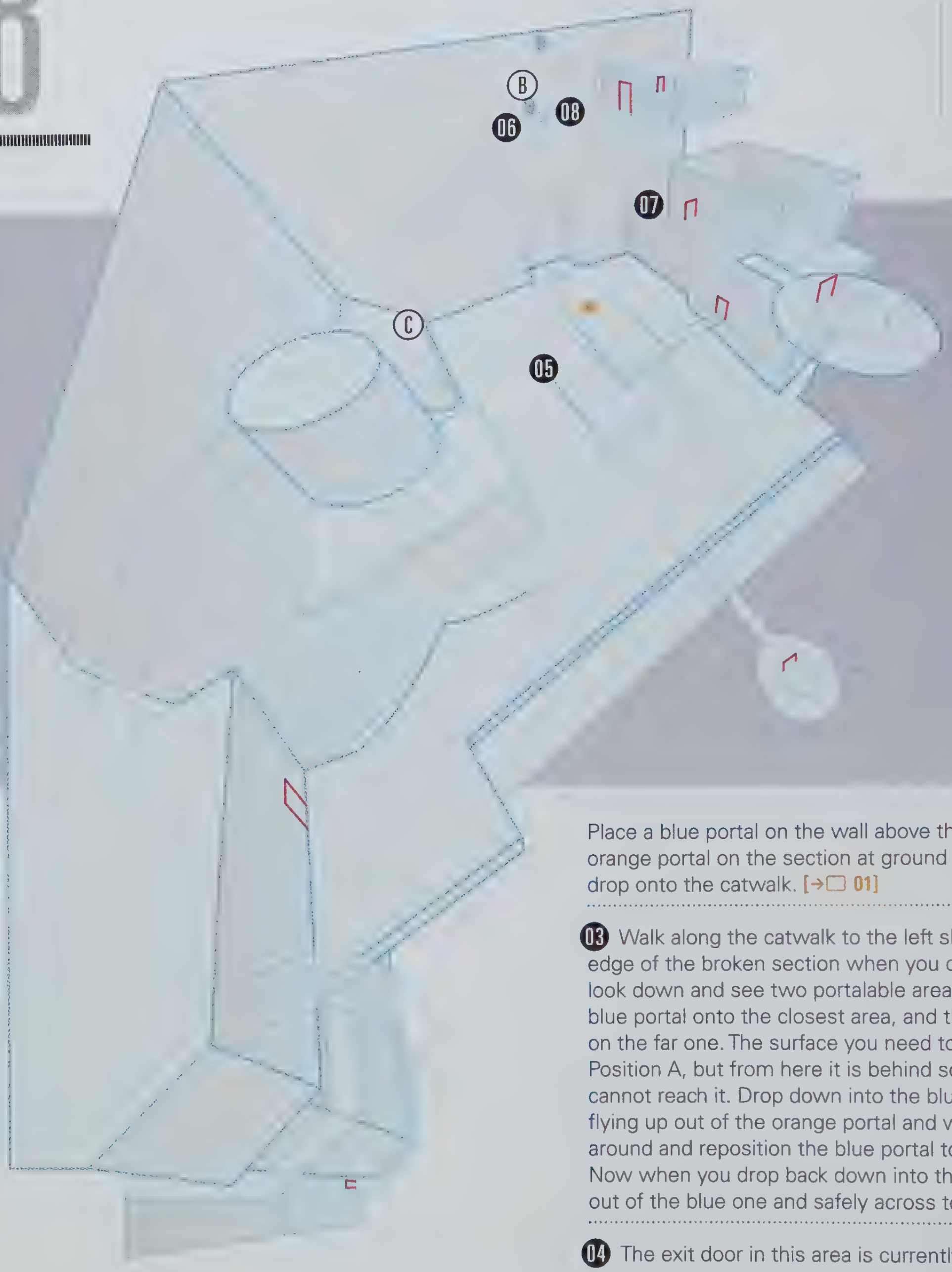
Aperture Information Service

This room is your only chance in the game to unlock the Schrodinger's Catch Achievement/Trophy so make sure you do not miss the opportunity. Save your game before dropping the Repulsion Gel onto the cube and then try to catch it before it hits the ground after breaking out. Because the direction it flies in is random, you may need to reload a few times until the cube bounces your way.

02 You will need to create another pool of Repulsion Gel on the floor near the elevator so that you can jump high enough to reach it, so reposition your orange portal onto the floor close to it. Wait for some of the Repulsion Gel to pass through the portal and then move it to another area so that it splashes down on the floor.

Use the gel to jump up to the elevator and then turn around and face the button. The only way to get the cube off the button is to use the Repulsion Gel, so reposition the orange portal on the ceiling directly above the cube so that the gel falls onto it, causing it to bounce off the button. The platform will start to rise as soon as the cube leaves the button and once it reaches the top you can follow the catwalk into the elevator up to the next area.

Path to Pump Station Beta



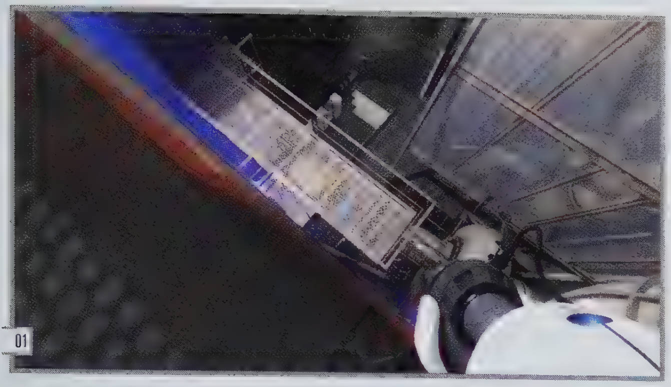
01 As soon as you step off the elevator, you will be able to see a door leading towards Pump Station Beta on the left across a chasm. Place a blue portal onto wall just to the right of the door above the catwalk. Continue walking along the catwalk you are on and down the hallway for a few steps and then turn around to find a portalable section of wall on the left and place an orange portal onto it. Step through the orange portal so that you come out onto the catwalk on the other side of the chasm and then follow that one along and go through the door.

02 The exit to this room is up high on the right wall so in order to reach it you will need to find a way to fling yourself up there. At the back of the room there is a small portalable section of wall at ground level and then another up high to the left above a catwalk. Place a blue portal on the wall above the catwalk, and then place an orange portal on the section at ground level and step through it to drop onto the catwalk. [→☐ 01]

03 Walk along the catwalk to the left slightly and step out to the edge of the broken section when you come to it. From here you can look down and see two portalable areas on the floor. Reposition the blue portal onto the closest area, and then place the orange portal on the far one. The surface you need to fling out of can be seen at Position A, but from here it is behind some glass panels and you cannot reach it. Drop down into the blue portal so that you come flying up out of the orange portal and while you are in the air, spin around and reposition the blue portal to the surface at Position A. Now when you drop back down into the orange portal you will fling out of the blue one and safely across to the room above.

04 The exit door in this area is currently closed, so head into the room on the right after landing from the fling and pull both of the levers to power up the pumps, and open the door [→☐ 02]. Go through the door and the Emancipation Grill on the other side and then through the next door to reach the entrance area to Pump Station Beta.

05 In order to reach the elevator leading up to Pump Station Beta you will first need to activate the moving platform that leads to it, and that requires you to access the control room. The only way to reach the control room is to fling across to it so you will need to get high enough to generate the momentum required to complete the fling. Start by placing a blue portal up high on the back wall at Position B, and then walk up to the area near the moving platform and place an orange portal on the small portalable section of floor so that you can drop into it.



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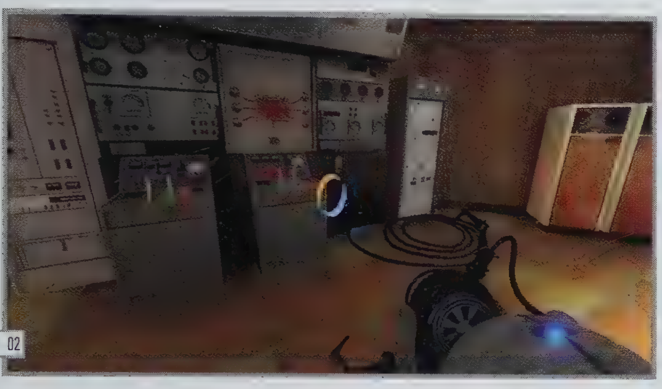

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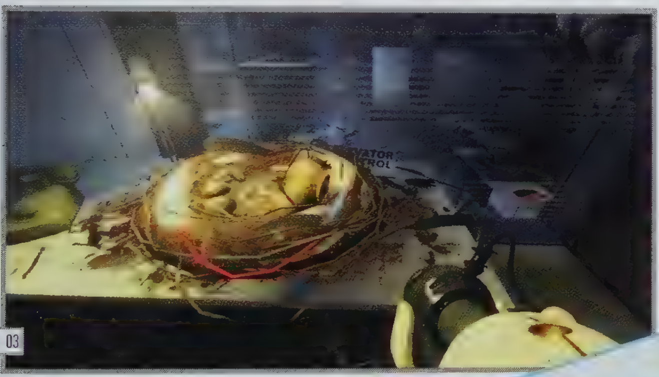


03

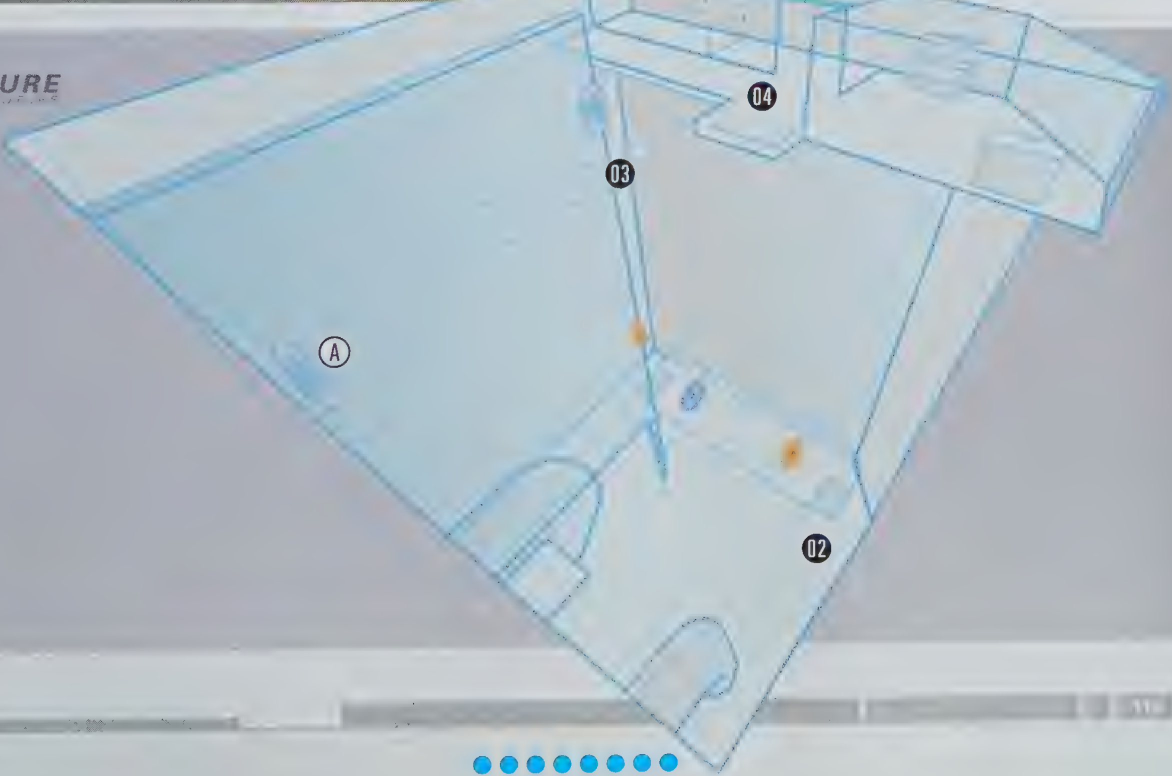
06 Now that you are on the catwalk, you are high enough to set up the fling to reach control room. Reposition the blue portal so that it is on the large angled surface to the right at Position C, and then drop down from the catwalk into your orange portal below to get flung out of the blue portal and over to the control room.

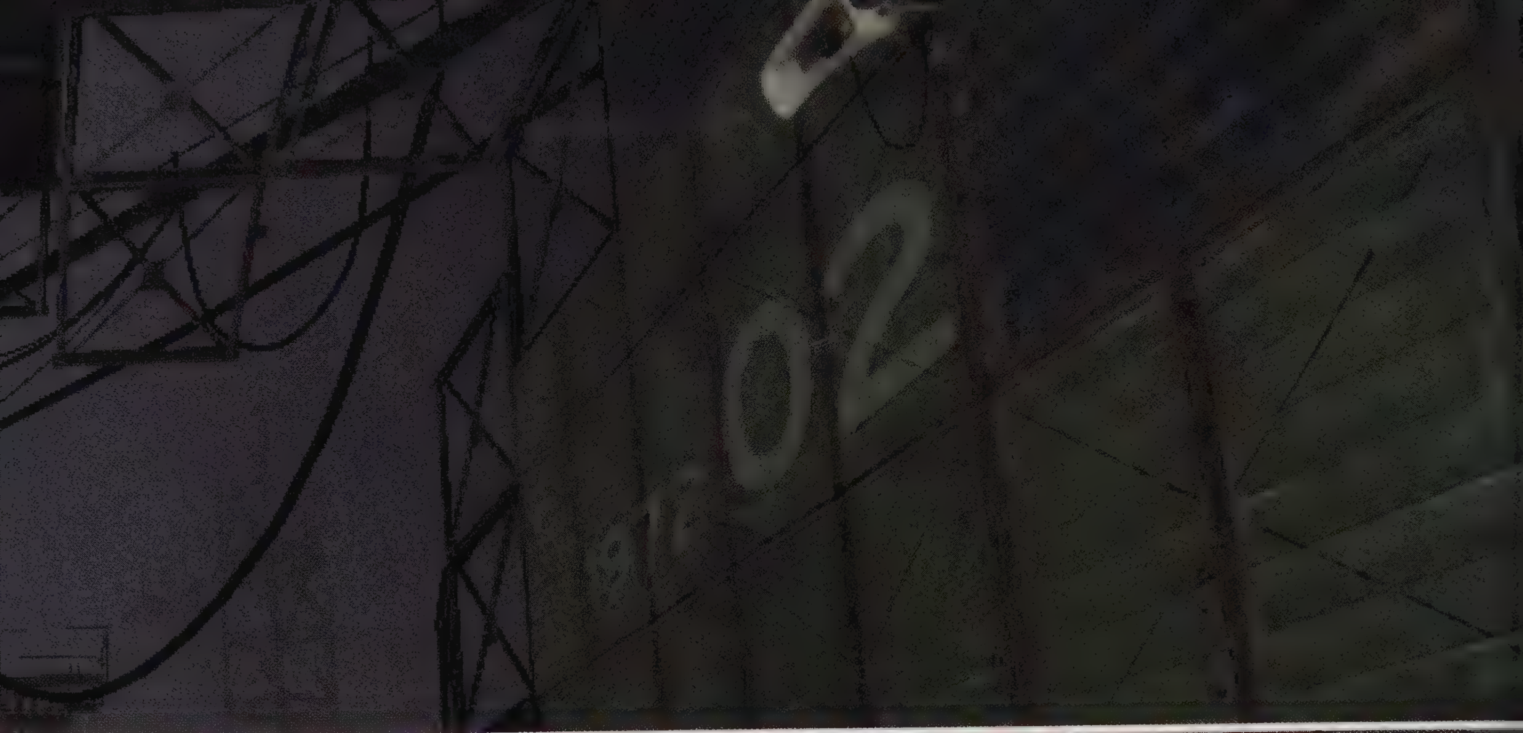
Aperture Information Service

The final three doors required for the Door Prize Achievement/Trophy can be found very close to this catwalk. Instead of dropping down for the fling as usual, head into the office to the left of the catwalk. In the back left corner of the office behind some filing cabinets you can just about make out a door and if you jump over the cabinets and get close enough, the door will open. On the other side of this door are the final three vitrified doors for the Door Prize Achievement/Trophy. If you also go through the open door at the end of the small hallway, you can find the area with the missing experiment and unlock the Ship Overboard Achievement/Trophy.

07 As soon as you enter the control room you will hear GLaDOS call for help from a small office in the back right of the room. Walk over to the office to scare the bird away and save GLaDOS and then when prompted, pick her up [→☐ 03]. The bird that found GLaDOS built its nest directly on top of the elevator control button, so as soon as you pick her up you will release the button and the moving platform below will start to rise. The platform will come to a stop in front of the elevator you need to reach Pump Station Beta and it extends far enough out so that you can land on it from a fling.

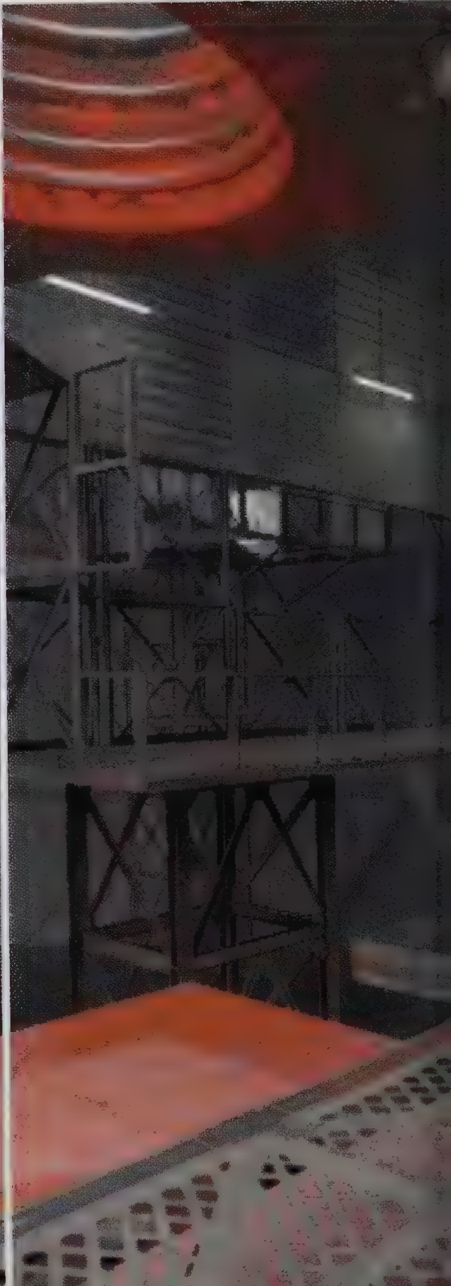
08 Exit the control room and drop back down to the floor below so that you can reposition both portals and get back up to the high catwalk. Once you are on the catwalk, place the blue portal as high as it can go on the back wall, in line with the platform you need to reach. Now, if you drop down from the catwalk into the orange portal below you will get flung out of the blue portal, over the safety gate and onto the platform behind it and from there you can follow the catwalk into the elevator.





CHAPTER 07

THE REUNION



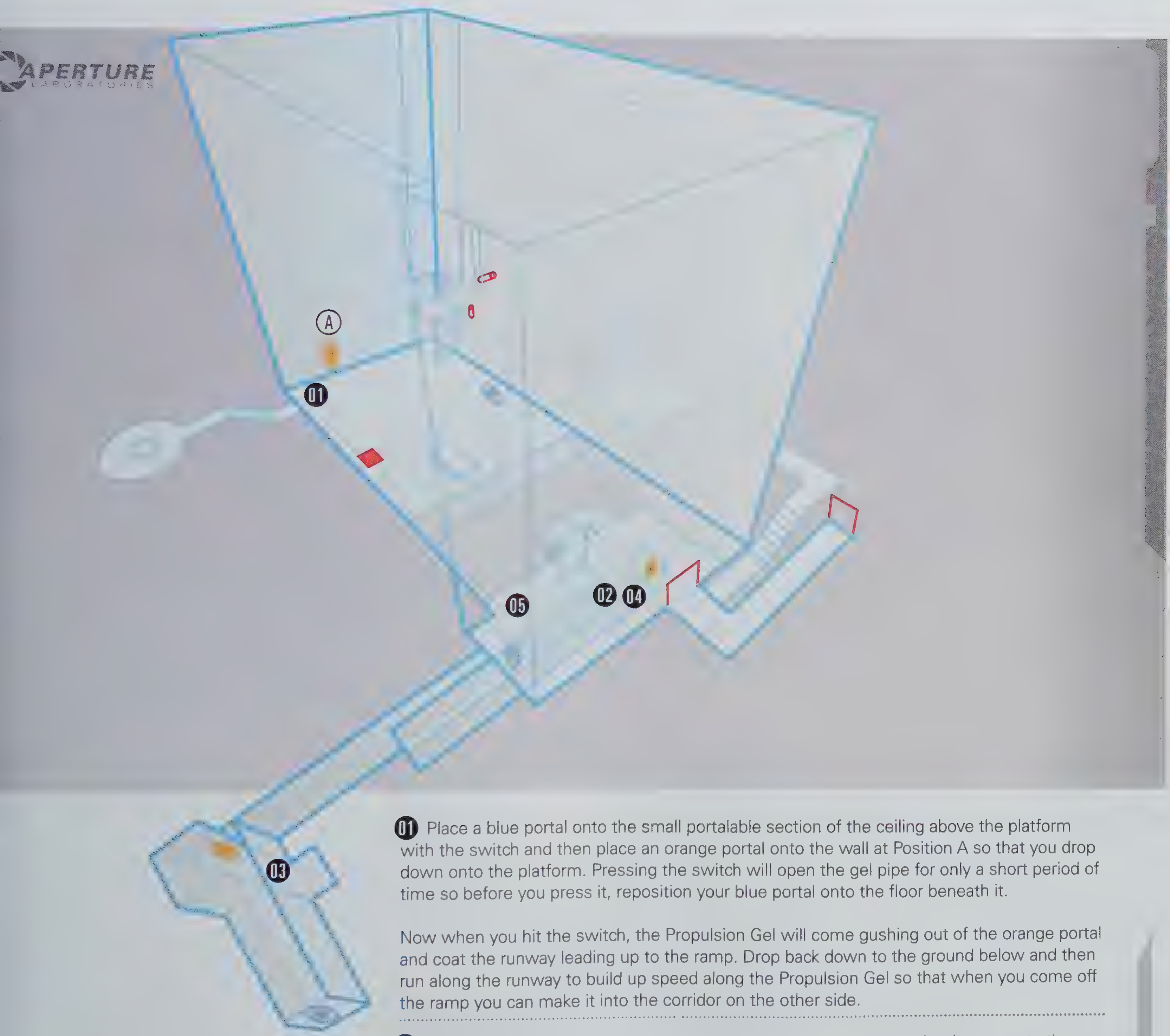
R1

01/09

Beta Enrichment Sphere 01 – A

07_047

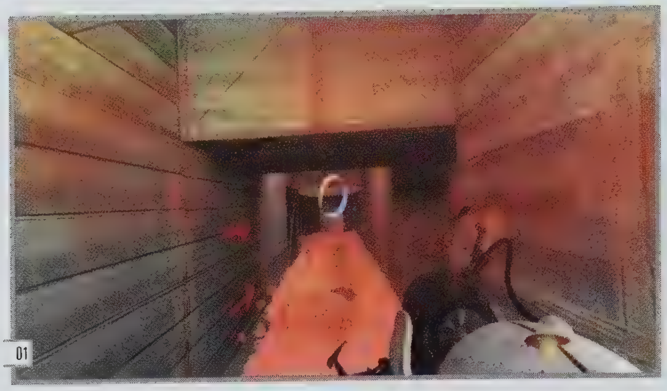
This next test sphere will introduce you to Propulsion Gel. Propulsion Gel constantly accelerates you while you move along it, meaning you can achieve much higher rates of speed than normal. This extra speed enables you to travel much greater distances than usual, allowing you to reach otherwise inaccessible areas of the test spheres. The aim of this test is to find a way of raising the ramp and making it across the gap to the exit. In order to accomplish this you will need to use portals to coat areas with Propulsion Gel so that you can acquire a cube and then reach the exit.



01 Place a blue portal onto the small portalable section of the ceiling above the platform with the switch and then place an orange portal onto the wall at Position A so that you drop down onto the platform. Pressing the switch will open the gel pipe for only a short period of time so before you press it, reposition your blue portal onto the floor beneath it.

Now when you hit the switch, the Propulsion Gel will come gushing out of the orange portal and coat the runway leading up to the ramp. Drop back down to the ground below and then run along the runway to build up speed along the Propulsion Gel so that when you come off the ramp you can make it into the corridor on the other side.

02 The next part of the testing area you need to reach is across another large gap to the right at the end of this corridor, but in order to make it you will need the aid of more Propulsion Gel. Reposition the blue portal onto the ceiling near the switch in the first part of the room and then place an orange portal onto the portalable wall in the dead end to the left of the corridor. Step through the orange portal to drop down near the switch and then reposition the blue portal so that it is beneath the gel pipe.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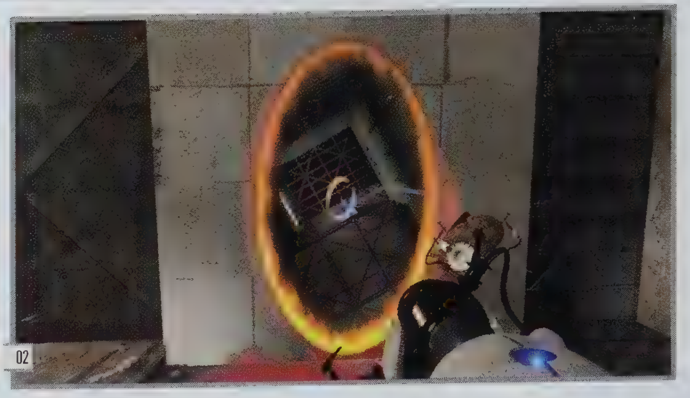

02

Now when you press the switch the gel will flow out of the orange portal and coat the corridor [→☐ 01]. Drop down from the switch platform and fall through the blue portal so that you come out in the corridor, and then run along the Propulsion Gel so that your momentum carries you over the gap to the next platform.

03 On the left of this platform you can see the cube that you need to press the button, but it is behind a glass panel with a hole in it. Aim through the hole and place a blue portal on the wall behind the cube and then turn around and place an orange portal onto the wall on the right side of the platform and step through it. Pick up the cube and then step back through the portals with it and drop it in the middle of the platform. If you look back across to the long corridor form here you should be able to see the back wall; reposition the blue portal onto that wall and then step through the orange portal into the corridor.

04 To get the cube back into the main part of the testing area, all you need to do is reposition the orange portal onto the wall at Position A again and then step through the blue portal. Walk over and drop the cube onto the button to raise the ramp so that now when you run along the Propulsion Gel you will get launched up to the area near the exit.

05 The switch to open the exit is high above a portalable surface on the floor to the right of it and in order to reach it you will need to generate a great deal of speed. Reposition the blue portal so that it is on the surface below the switch and then drop through it to come back on the other side near the runway. Walk over to the ramp, and then run along the Propulsion Gel through the orange portal so that you come flying out of the blue portal [→☐ 02]. While you are in mid-air, hit the switch to open the door so that when you land you can walk through it to the next testing area.

Aperture Information Service

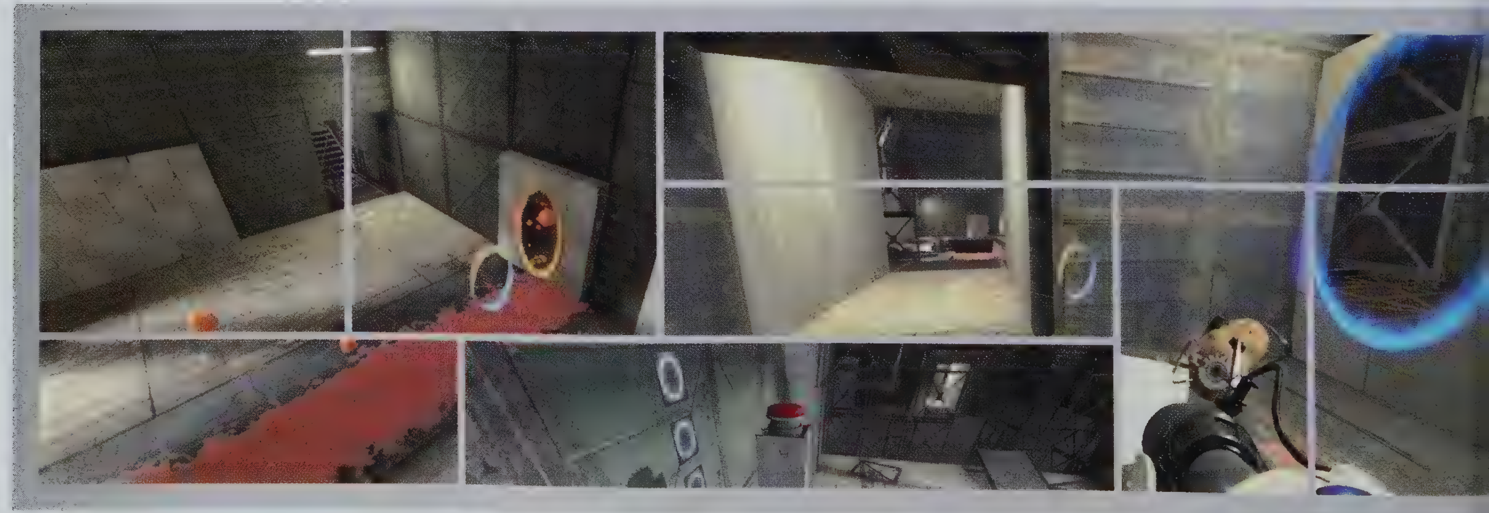
There is actually a significant shortcut that you can take in this area to skip past a large segment of the test. When you first enter the room, coat the runway with Propulsion Gel as usual and then stand near the ramp and run back through the orange portal on the wall so that you come flying out of the blue portal beneath the gel pipe. Now while you are in mid-air, look over towards the exit and you will just about be able to make out the portalable surface below the switch.

Quickly reposition your blue portal onto this surface before you drop back down, and then run back along the Propulsion Gel again through the orange portal. You should now come flying out up to the switch and can open the exit door straight away, without having to go through the process of retrieving the cube.

Aperture Information Service

Before going straight to the next testing area, you may want to take a slight detour at this time to unlock the Portrait of a Lady Achievement/Trophy. On the right side of the corridor, just in front of the Emancipation Grill before the next testing area, is a portalable surface; place a blue portal onto this surface.

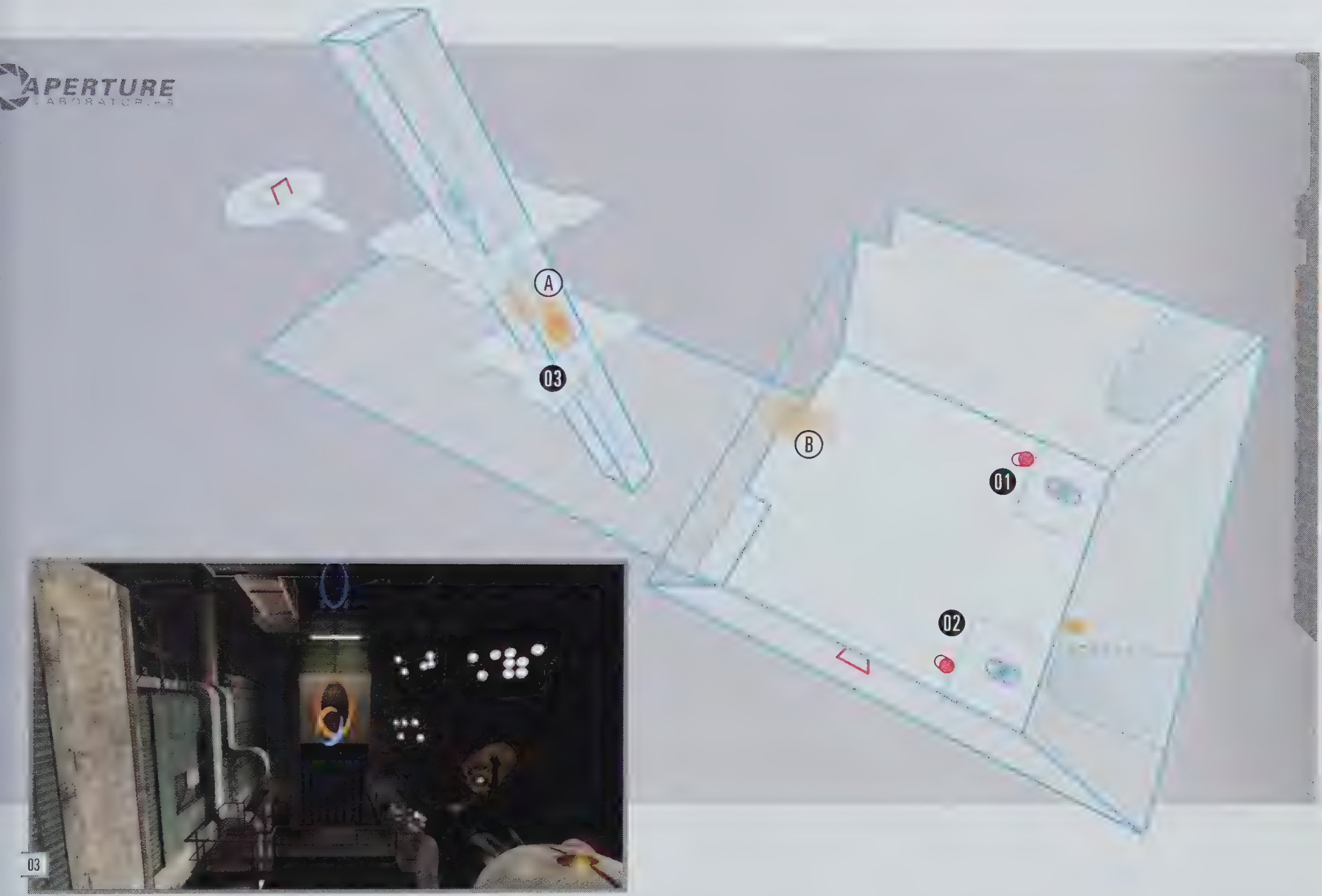
Now if you look to the left through the gap in the wall you will be able to see another portalable wall on the other side. Place an orange portal onto that surface and then step through the blue portal to reach the area on the other side of the wall. From this new location, you can head right into the nearby office and look at the painting on the wall to unlock the Achievement/Trophy.



Beta Enrichment Sphere 01 – B

The aim of this test is to simply get to the exit. This does mean, however, finding a way across the chasm and around the column that is blocking the way. To create a path to the exit, you will need to find a way of using the Mobility Gels to increase momentum, and then use portals to circumvent the column and make it across the chasm.

07_048



01 To begin with, place a blue portal beneath the Propulsion Gel pipe, and then place an orange portal onto the portalable surface on the central column at Position A. Once the portals are in place, press the switch to start the Propulsion Gel flowing and it should drop through the blue portal and out of the orange one, covering the central portion of the room with Propulsion Gel. Propulsion Gel alone will not let you reach the central column, however, so you will also need to employ some of the Repulsion Gel.

02 Place a blue portal beneath the Repulsion Gel pipe, and then look up to find a small portalable section of the roof at Position B and place an orange portal onto it. Press the switch to start the Repulsion Gel flowing so that it passes through the portals and drops down onto the end of the ledge overlooking the chasm. You should now have a long strip of Propulsion Gel with a small patch of Repulsion Gel at the end. Walk to the back of the area and then start running along the Propulsion Gel to build up speed; as soon as you reach the Repulsion Gel, jump to easily make it across to the central column.

03 Walk around to the side of the column facing the exit and place an orange portal on the surface at the same level as the catwalk you are on. If you look up you will also be able to see another portalable surface by the catwalk above, and you should place a blue portal onto that surface. Walk through the orange portal to reach the upper catwalk, and then look back across to the starting area and reposition the orange portal onto the wall to the side of the Repulsion Gel pipe.

If you now step back through the blue portal you can drop back down to the starting area, and then reposition the orange portal again so that it is back at Position A on the column. If the portals are set up correctly at this time you should have one on either side of the central column [→□ 03]. Use the strip of Propulsion Gel again to build up momentum and jump off the Repulsion Gel as usual. This time, however, you should jump through the orange portal and out of the blue one on the other side and safely land just in front of the elevator to the next testing sphere.

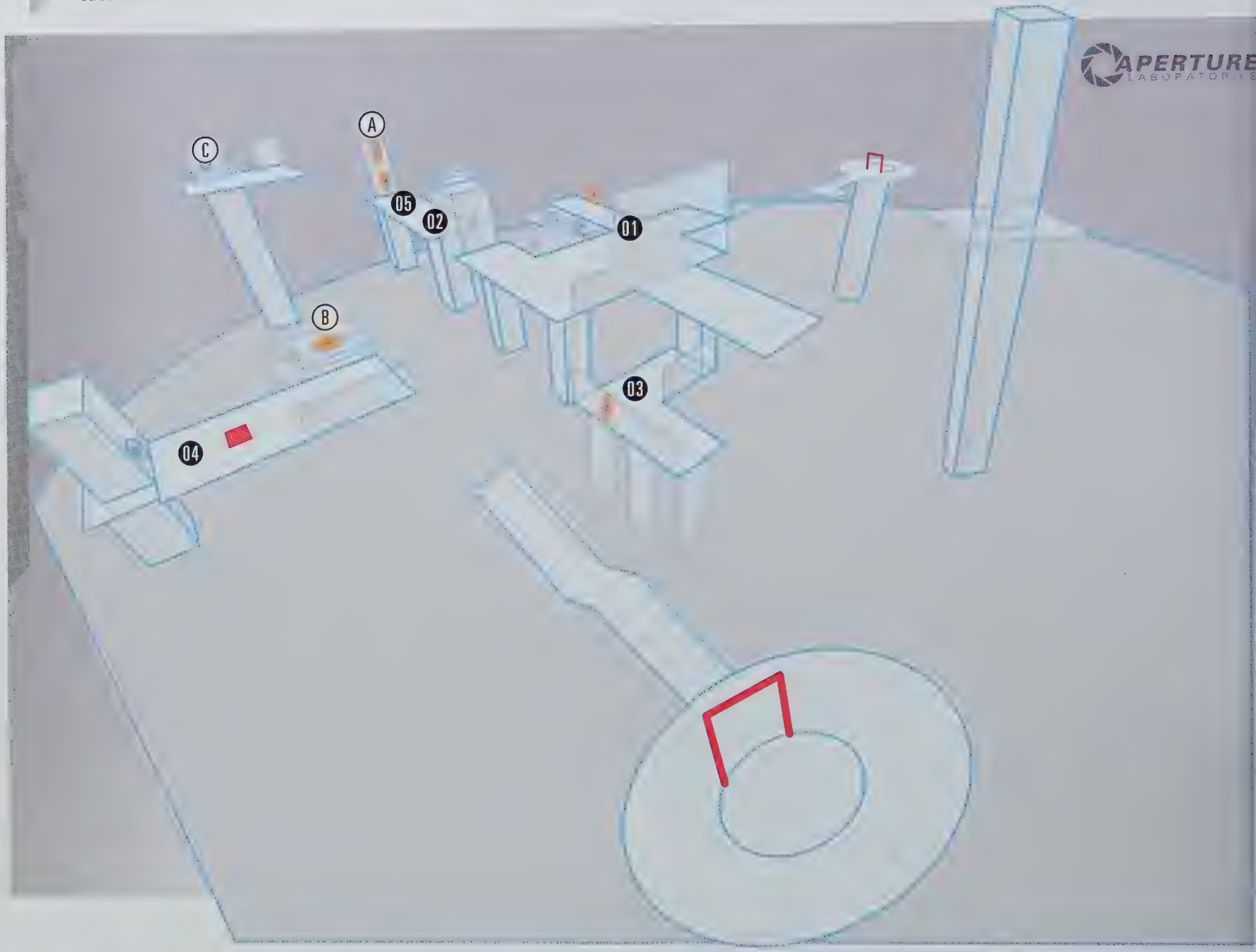
R3

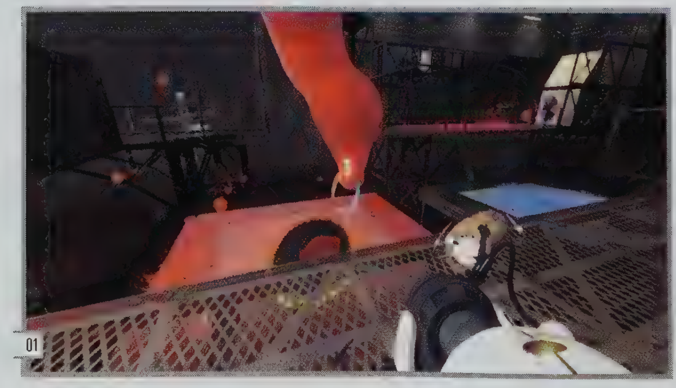
03/09

Beta Enrichment Sphere 02

07_049

The aim of this test is to first create a path over to the cube, and then use the cube to create a stepping stone which will enable you to reach the exit. To accomplish this you will need to use portals to transport both of the gels to different parts of the sphere and allow it to coat the surfaces needed to complete the test.




01

02

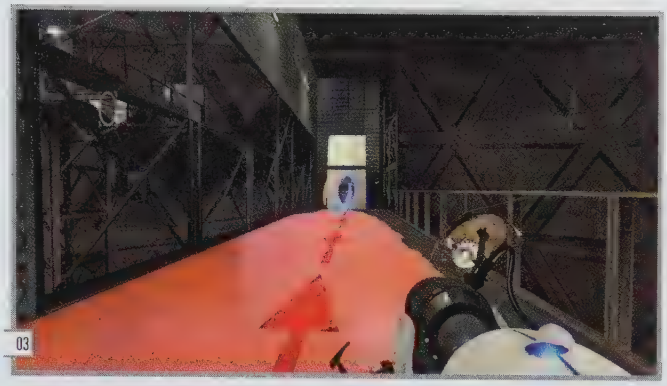
01 Start by placing a blue portal beneath the Repulsion Gel pipe, and then place the orange portal on the angled surface of the platform on the right at Position A. The Repulsion Gel should now flow through the portals and out onto a ramp in the middle of the area. Reposition the orange portal so that it is on the flat surface directly below the angled one it was on originally and then move the blue portal so that it is beneath the Propulsion Gel pipe. The Propulsion Gel should now pass through the portals and coat the runway along the right platform. [→☐ 01]

02 Once the gels have been placed, drop through the blue portal so that you come out onto the platform on the right, and then walk to the end of it so that you are facing the portalable surfaces. Place the blue portal on the flat surface at the end of the runway, and then place the orange portal on the angled surface directly above it. Run along the Propulsion Gel so that you build up momentum on your way to the blue portal, now when you pass through it you will fly out of the orange portal [→☐ 02]. The ramp on which you placed Repulsion Gel at the start will be directly in your flight path so you will bounce off it all the way to the suspended platform with the cube.

03 Pick up the cube, drop down to the platform below with it and place it on the floor. From this platform you have a clear view across to the back of the platform with the button and can place a blue portal on the back wall. Place an orange portal on any of the walls of the current platform, then pick up the cube, and step through it.

04 Before placing the cube onto the button and rotating the panel, you will need to coat it with Repulsion Gel. Put the cube down on the floor near the button, and then reposition the orange portal onto the wall on the main platform behind the Repulsion Gel pipe. Step through the portal onto the main platform and then place a blue portal beneath the Repulsion Gel pipe and an orange one on the surface below the rotating panel at Position B so that the Repulsion Gel can pass through and coat the panel.

Once the panel has been coated, reposition the orange portal back onto the wall behind the pipes and then place the blue portal on the wall at the back of the platform with the button so that you can get back over to the cube. Pick up the cube once you are through the portals and then place it onto the button to rotate the panel and have the gel-coated surface face upwards. In order to build up enough momentum to make the jump across to the exit, you will once again need to use the Propulsion Gel-coated runway, so reposition the orange portal over to the flat surface below Position A.

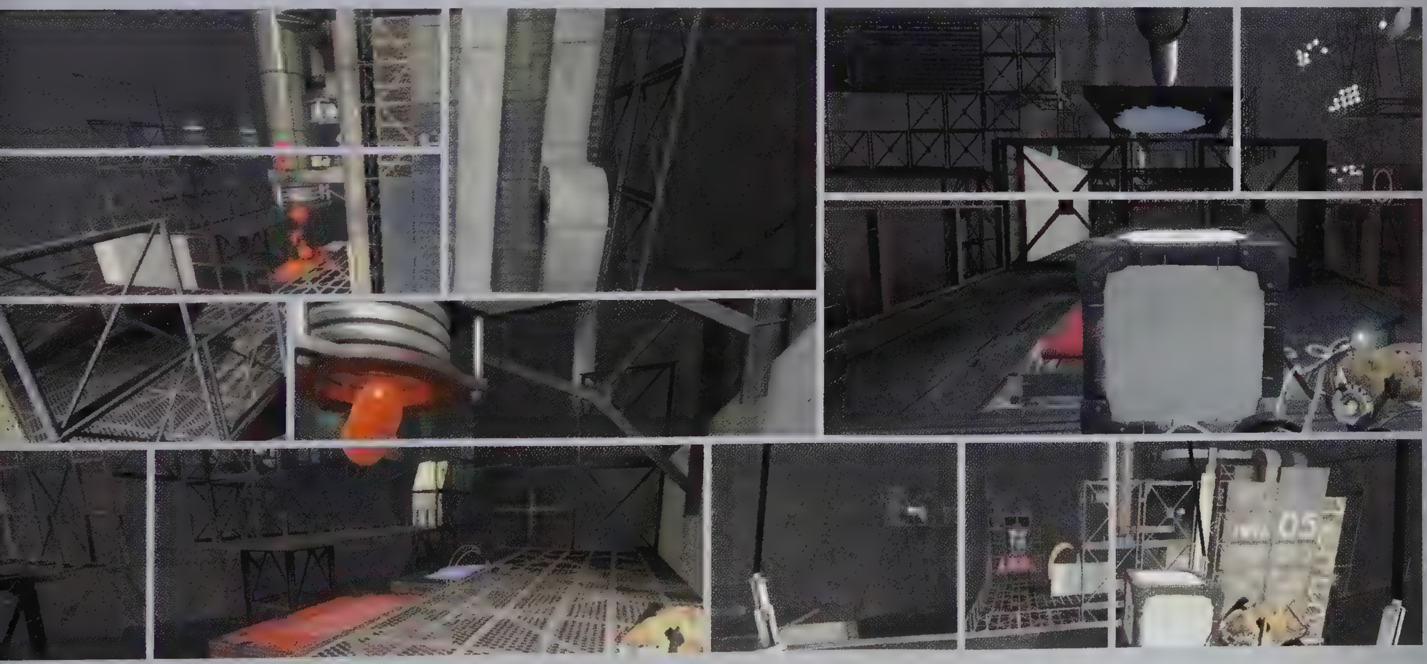

03

Aperture Information Service

Once you know the position of the portalable surface below the rotating panel, you can actually get the Repulsion Gel onto it when you first enter the testing area. When you are placing the Repulsion Gel onto the ramp at the start of the test, simply reposition the portal from the angled surface to the surface beneath the rotating panel. Using this method you can save some time during the latter half of the test.

05 Step through the blue portal so that you come out onto the runway and then walk to the end of it so that you are once again facing the portalable wall. Reposition the blue portal so that it is on the high platform on the right of the sphere at Position C and then start running along the Propulsion Gel [→☐ 03].

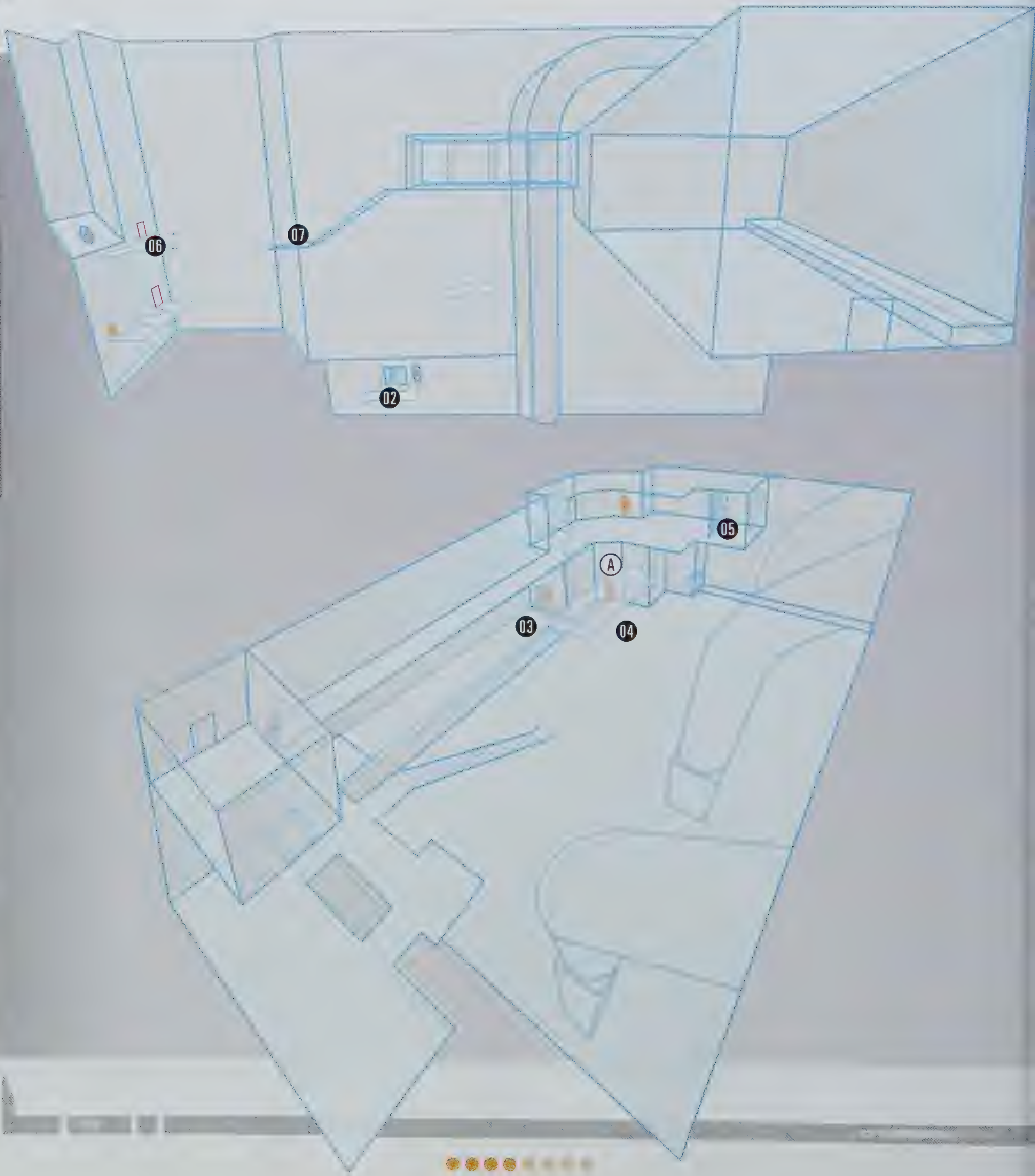
Now when you go through the orange portal you will have enough speed to fly off the ramp in front of the blue portal, bounce off the panel with the Repulsion Gel and make it all the way to the elevator to complete the test.



R4

Path to Pump Station Gamma

07_050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04

01 The entrance to the control room for Pump Station Gamma can be seen up high on the left as soon as you exit the elevator, but you must first find a way over there. Walk through the Emancipation Grill at the end of the catwalk and continue along the corridor on the other side until you come to the start of the orange tiled floor. Look directly above the area where this floor starts and you will see another catwalk with a portalable wall at the end of it; place a blue portal onto this wall. Follow the orange floor along for a short distance and just in front of a blocked off doorway you will see another portalable wall on the right; place an orange portal onto this wall, and then step through to come out onto the catwalk.

02 Step through the Emancipation Grill and out onto the catwalk on the other side. Place a blue portal onto the wall to the side of the doorway you just stepped through and then look up to the entrance to Pump Station Gamma and place an orange portal onto the wall in the middle of the catwalk. Once you are up on the next catwalk, walk through the doorway and past another Emancipation Grill to reach the control room.

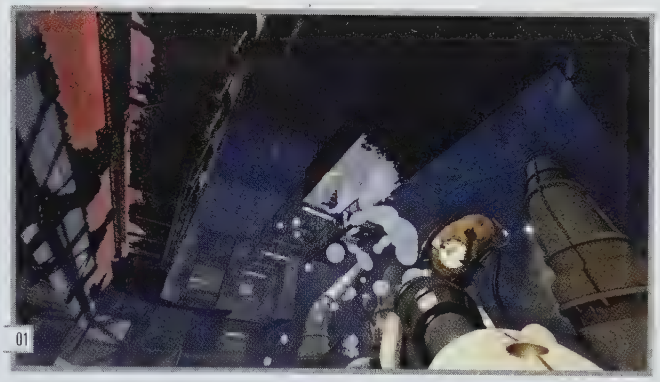
03 Follow the walkway along on the left in into the office at the end and then pull all three of the Gel Pressure Control levers to start the gel pumping through the area. Pump Station Gamma introduces the final of the three Mobility Gels: Conversion Gel. This white gel is made from ground up moon rocks, and that makes it an excellent portal conductor. Any surface that has Conversion Gel placed on it will instantly become portalable, even if it was not before.

The seals on the gel pipes in this area have worn down over the years so when you activate the levers, some of the gel will start to spew out. A series of pistons running along the walkway you entered the office along will also power up at the same time as the pumps. These pistons will instantly crush you if you get caught beneath one and the walkway is too long to make it across safely.

Place a blue portal on the wall at the other end of the walkway and then place an orange portal on the wall in the office and step through it. By the time you are back to the start of the walkway, the Conversion Gel should have started to coat the area, including a small patch on a column above the main part of the room [→☐ 01]. This column is directly above a catwalk that you need to reach, so reposition the orange portal onto the column at Position A and then step through the blue portal to drop onto the catwalk.

04 The exit to this room can be seen behind you once you drop onto the catwalk, but in order to reach it you will first need to navigate past a few more obstacles. The catwalk no longer extends all the way across to the platform you need to reach, but thankfully, when the seals on the pipes burst, a small pool of Repulsion Gel was created below. If you jump off the catwalk toward the platform you will pick up enough momentum to bounce off the Repulsion Gel below and make it across the gap.

05 Pass through the Emancipation Grill to come to a small corridor that has been coated with Propulsion Gel. The gel extends all the way along another walkway that leads to the exit, but along the walkway are more pistons. Because of the extra speed you will pick up while traveling along Propulsion Gel it is possible to cross the walkway fast enough to get past the pistons without the aid of portals. Stand near the doorway leading out onto the walkway, and then start running forward as soon as the pistons start to rise to make it across safely.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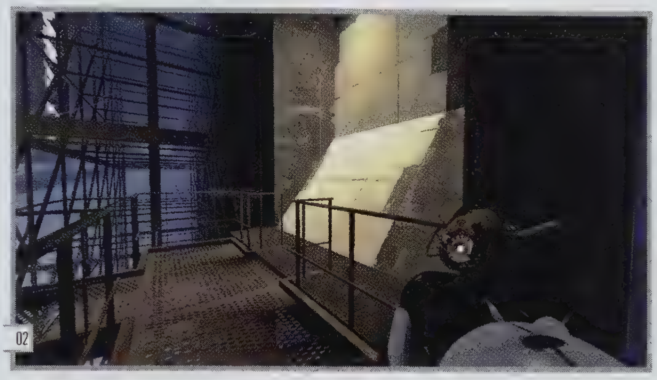
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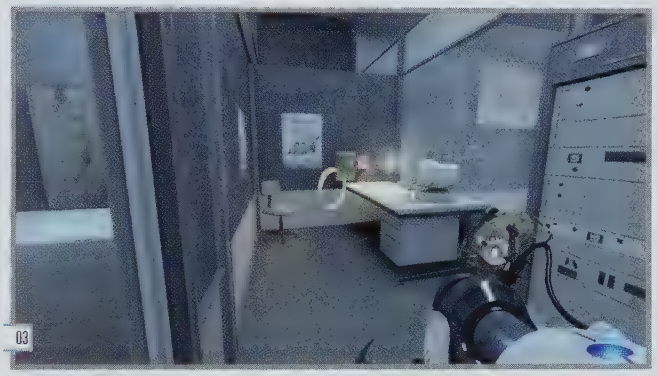

03

06 Open the door on the other side of the walkway so that you come back out onto the catwalks overlooking the beginning of this area. The catwalk between this area and the next room you need to get to has collapsed over the years so you will need to find another way across. To the right of the doorway there is an angled portalable surface, which indicates that you can use a fling to cross the gap. Place a blue portal onto this surface and then go back into the previous room. [→☐ 02]

In order to make the fling you will need to generate a large amount of momentum and the only means of doing so in the area is by using the Propulsion Gel along the walkway. On the other side of the walkway in the small room is a portalable surface onto which you should place an orange portal. Wait for the pistons to start rising again and then run along the Propulsion Gel and through the orange portal so that you get flung out of the blue portal and across the gap.

07 Walk through the office at the top of the catwalk you land on and then drop down through the hole in the wall at the end to reach the waiting area below. The exit door is currently closed, so to open it you will need to step into the small office on the right and press the red switch on the wall near the desk [→☐ 03]. Once the door is open, head through it and into the elevator to the next area.

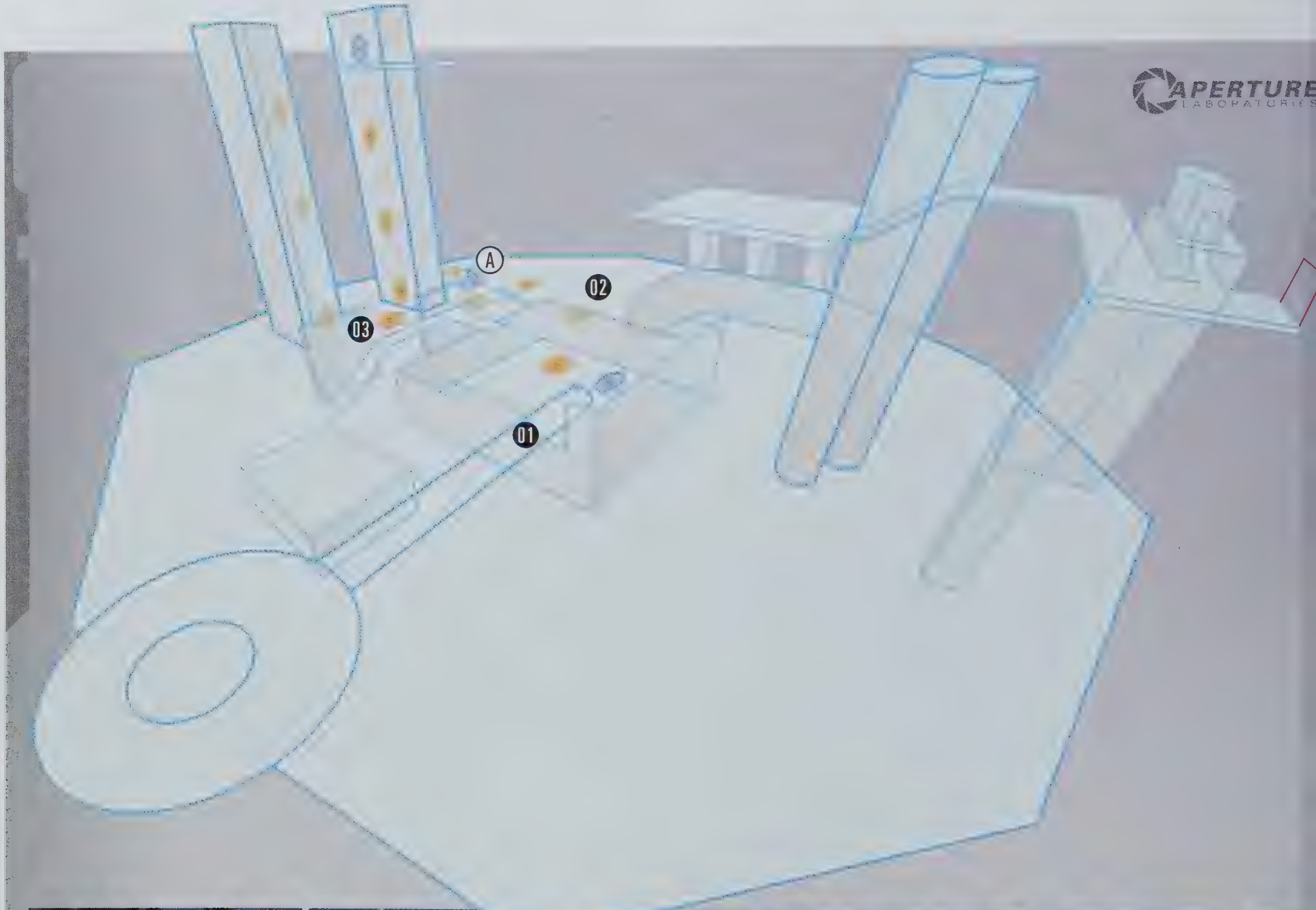
R5

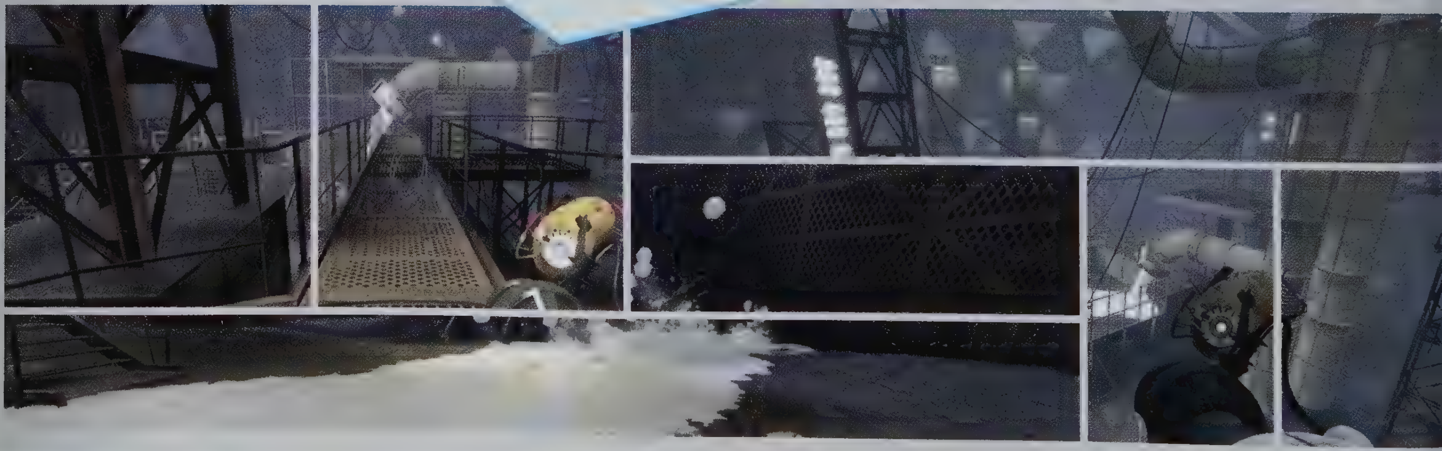
05/09

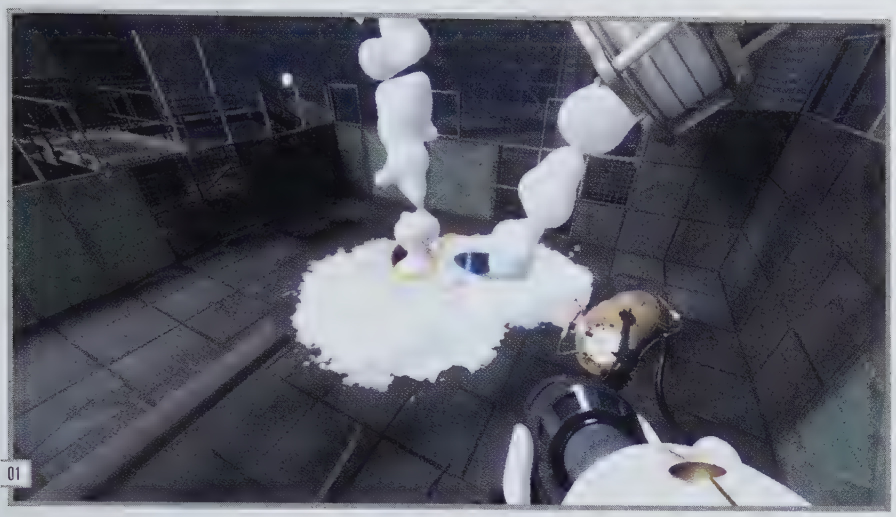
Gamma Enrichment Sphere 01

07_051

The aim of this test is just to find a way of getting to the exit, but since there is no apparent way up to it, things will not be as straight forward as they seem. To complete the test you will need to use portals to extend and redirect the flow of the Conversion Gel to create new portalable surfaces that allow you to reach the goal.







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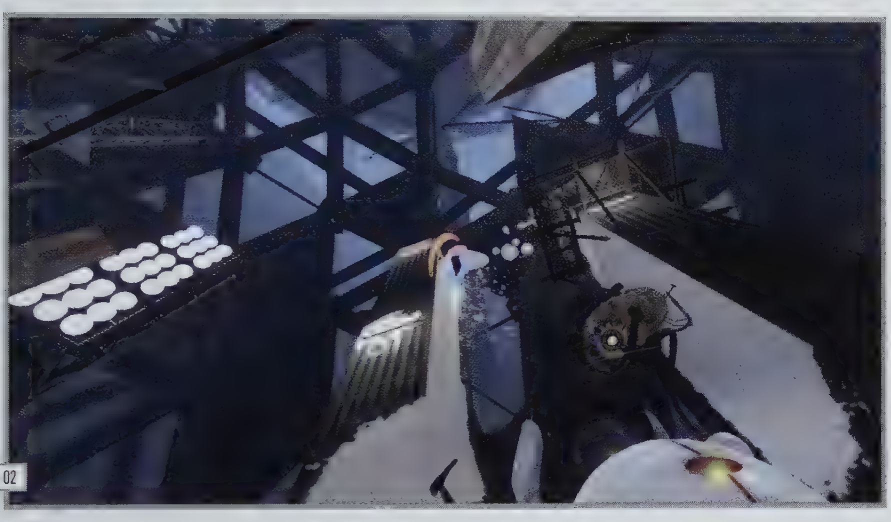


02

01 Since there are no other portalable surfaces in the chamber, you will need to create your own path using the Conversion Gel. Place a blue portal on the floor beneath the flow of Conversion Gel and then place an orange portal next to it. Because the gel will exit the orange portal along the same angle that it entered the blue portal, it will arc over the sealed off area below the catwalk and coat the floor outside. [→☐ 01].

Drop down into the area below and look through the mesh so that you can see the area on the other side of the wall that the Conversion Gel is currently hitting. Reposition the orange portal onto that surface and then drop down through the blue portal to come out on the other side of the walled off area.

02 The only way to reach the catwalk leading to the exit is to fling up to it, so in order to accomplish that, you will need to create a suitable angled surface and reach an area high enough to jump from to create the necessary momentum. There is an angled surface near this location at Position A that is ideal, but you will first need to make it portalable. Reposition the orange portal so that the gel can flow out of it and onto the angled surface.

At the top of a tall column close to the angled surface, is a catwalk that is high enough to fall from and generate enough momentum. There is no way up to the catwalk at the time being, however, so you will need to create one using the Conversion Gel. Reposition the orange portal so that the gel flows out in the direction of the two columns and then keep moving it towards them each time a new area of the floor is made portalable.

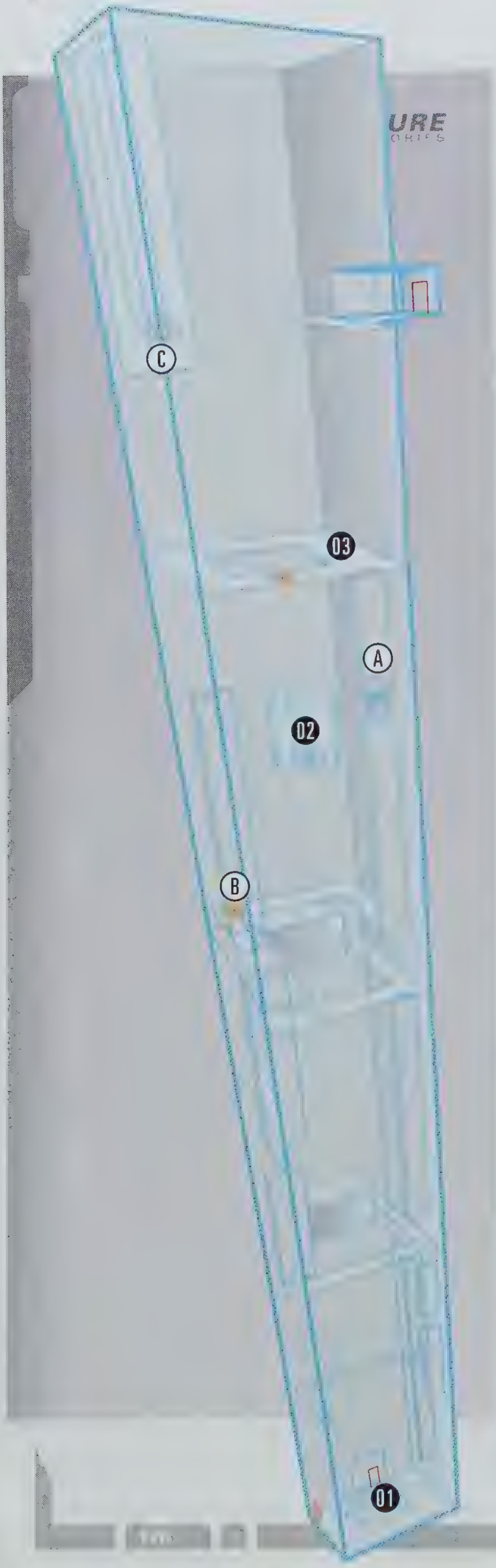
03 Position the orange portal so that the gel is flowing out onto the column without the catwalk so that the inside of it gets coated with gel. You can now reposition the orange portal onto the column so the gel flows out and coats the one next to it with the catwalk. If you keep alternating the column on which the orange portal is placed you will gradually increase the height of the gel coating, until eventually the inside of both columns are entirely coated in gel. [→☐ 02]

If at any time you accidentally move the blue portal while you are still coating the columns, there is a staircase just in front of the columns that leads up to a catwalk which allows you to look down into the walled area. From there you can replace the blue portal beneath the gel flow and then continue coating the columns.

04 Once both columns have been coated, you will no longer need the Conversion Gel so you can place the blue portal at the very top of the one with the catwalk. The orange portal can then be placed at the bottom of either column so that you can step through it drop onto the catwalk above. Walk around the catwalk until you come to a ledge overlooking the angled surface and then place a blue portal onto it. During the process of coating the angled surface with gel, the area behind it should have also been coated, allowing you to place the orange portal on the floor behind the angled surface.

Once both portals are in place, simply jump off the ledge into the orange portal so that you fling out of the blue one and onto the platform on the other side. If the area around the angled surface does not have sufficient gel to place a portal onto it, then you can use the floor between the two columns and jump down from the ledge above that area. After landing on the platform, walk along the long catwalk and through the exit doors, then pass through the Emancipation Grill to the next area.

Pump Station Gamma: Elevator Shaft



01 The elevator in this area is no longer working so you need to find another means of reaching the exit at the top of the tall elevator shaft. A number of portalable walls are scattered all the way up the elevator shaft and there are also catwalks that you can land on around the outside wall of the shaft. Walk forward to the edge of the platform you enter this area on and look directly up the elevator shaft.

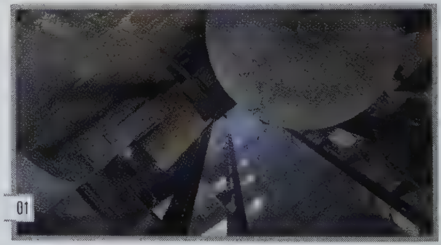
The malfunctioning elevator can be seen about halfway up the shaft, and just to the left it you can just about make out a small corner on the highest visible section of portalable wall at Position A if you zoom in [→☐ 01]. The angle makes lining up the shot a little bit difficult, but placing your blue portal at Position A will save a lot of time in the long run. Once the blue portal is in place, put the orange portal on one of the portalable surfaces to either side of the starting platform and then step through it to drop down onto the catwalk near the elevator.

02 Walk around the catwalk so that you can see into the elevator and then reposition the blue portal onto the floor of the elevator. There is a hole in the top of the elevator and in order to reach the next part of the shaft you need to fling yourself up through it. At the end of the catwalk near the elevator is a long drop with a portalable section of floor below; place the orange portal onto this section of floor at Position B and then drop down into it. As soon as you pass through the portal, start holding forward so that you can land on one of the ledges above the elevator. If you happen to miss the ledge and land on top of the, elevator, you can simply drop off back onto the catwalk just below it and attempt the fling again.

03 You are nearing the top of the shaft now and the catwalk leading to the exit is clearly visible up above. In order to reach it, however, you will need to fling across the shaft, which means you will need the angled surface at Position C.

The only way to get a portal to Position C is to fire one onto it while you are in mid-air after getting flung out of one of the portalable surfaces on the floor of this ledge. To make this shot easier, align your character so that it is facing the exit, and then place an orange portal on the floor. Now when you fling out of the orange portal you will be looking almost directly at the surface and will not have to turn around in mid-air.

Once the orange portal is in place, drop down from the ledge, through the hole in the roof of the elevator and into the blue portal. While you are in mid-air, aim at the angled surface and reposition the blue portal to Position C, so that you can fall back down through the orange portal on the ledge and fling across the shaft to the catwalk above [→☐ 02]. If you miss the orange portal when you fall back down, simply reposition it onto the floor of the elevator and jump down from the ledge to complete the fling. After landing on the catwalk, walk through the door to move to the next area.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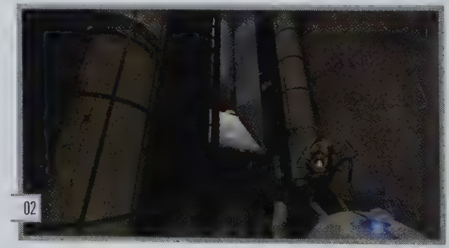
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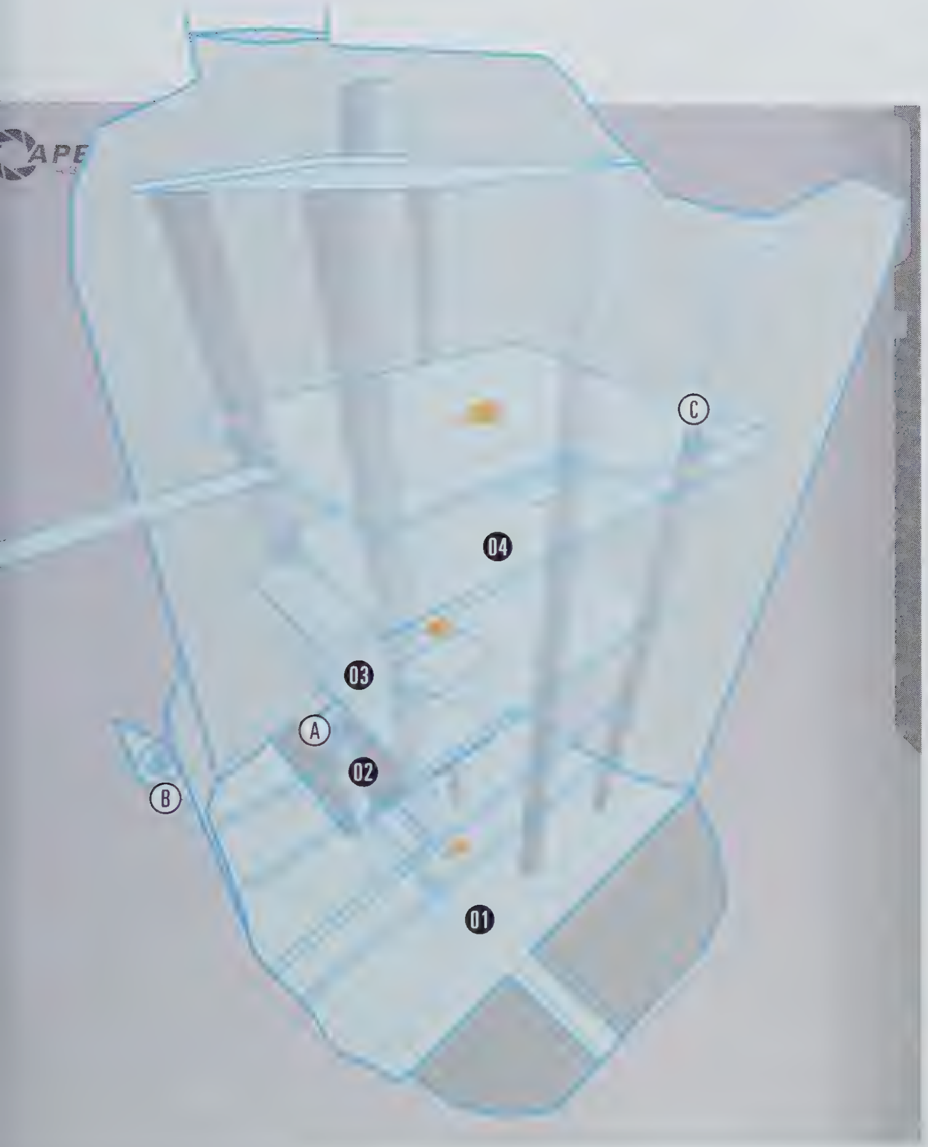
R7

Gamma Construction Area – A

The goal of this test is to find a way up to the catwalk at the top of this partially constructed building. To accomplish this you will need to use portals to disperse Repulsion Gel onto strategic areas and then use flings to generate enough momentum to go up each floor.

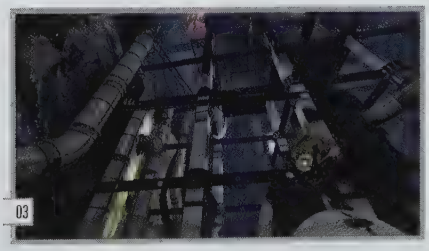


01 Start by placing a blue portal onto the one of the vertical beams at Position A and then place an orange portal onto the portalable section of the floor in the middle of the structure and drop through it. [→☐ 03]

02 You should now be standing on one of the horizontal support beams high above the ground and you will need to create a fling in order to continue. Reposition the blue portal so that it is on the angled surface above the door between the large pipes at Position B and then turn around and move the orange portal so that you can drop down into it from the beam.

03 If the portals were setup correctly, you should fling out of the blue portal and land on a platform above the beams. To reach the floor above you will need the aid of the Repulsion Gel that is dripping down on the side of this platform. Reposition the orange portal so that it is on the surface beneath the dripping Repulsion Gel, so that the drops of gel get to pass through it and get flung back across the platform and onto the angled surface you hit at the end of the fling up here. Wait until the angled surface is well coated and then reposition the orange portal back onto the floor at the bottom of the area and drop down into it. Now when you fling out of the blue portal, bounce off the Repulsion Gel and land on the next platform up.

04 On the opposite side of this floor at Position C, is a small section of portalable floor onto which you should reposition the blue portal. Once the blue portal is in place, drop down through the hole in the floor of the platform to the one below and then drop down again into the orange portal on the floor at the bottom. After getting flung out of the blue portal, aim the camera down through panels in the wall ahead and reposition the orange portal onto the portalable section of floor you can see on the other side [→☐ 04]. Now when you fall back down, you should pass through the blue portal and come out on the top level of the structure and can then walk across the catwalk to the next part of the test.



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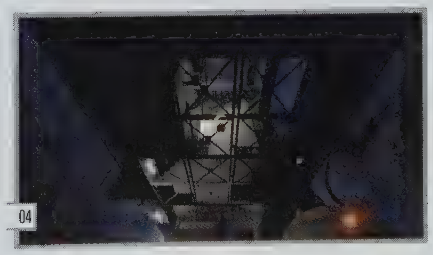


04

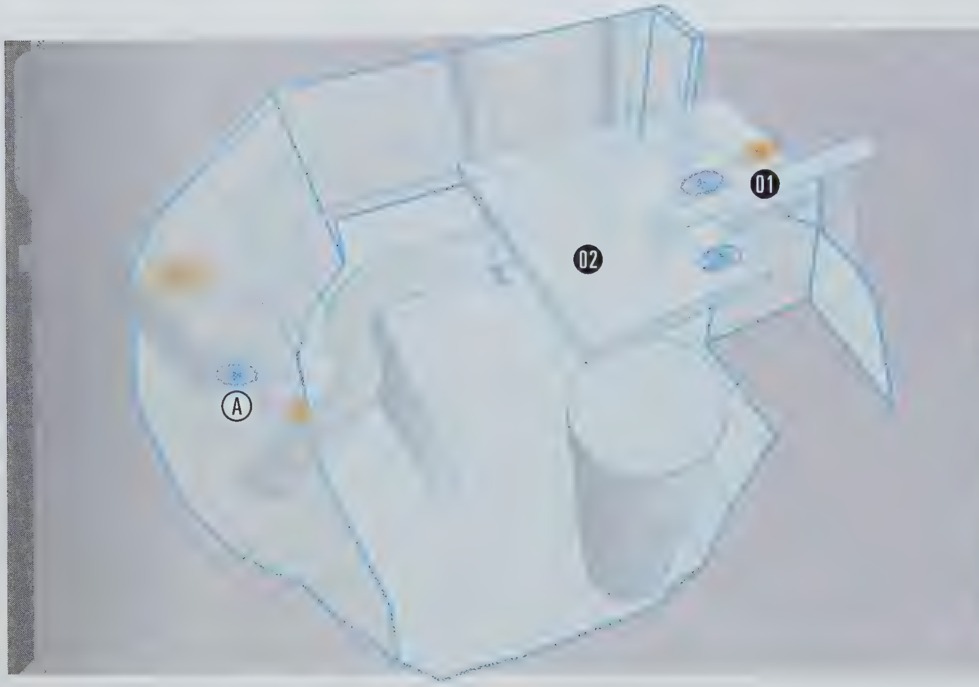
R8

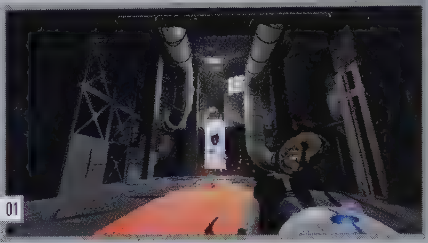
08/09

Gamma Construction Area – B

The goal of this area is to find a way across the large chasm and then up the tall shaft to the exit. To accomplish this you will need to use all three Mobility Gels in conjunction with each other, and portals to set up a series of flings and jumps to cross the chasm.

07_054

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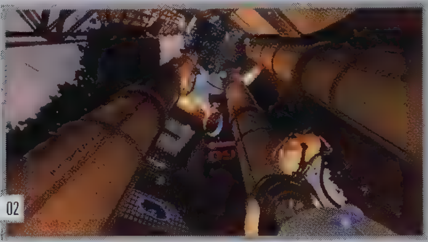

02

01 The first step is to make the angled surface portalable, so you will need to use the Conversion Gel. Place a blue portal directly beneath the Conversion Gel pipe, and then place the orange portal on ceiling above Position A. Wait until the angled surface and the wall below it are well covered in Conversion Gel and then reposition the orange portal onto the flat wall below the angled surface. In order to complete the fling you will need to generate a lot of momentum, so for this you will need the Propulsion Gel.

Place the blue portal beneath the dripping Propulsion Gel pipe so that it pours out of the orange portal on the wall, creating a long strip of Propulsion Gel [→□ 01]. Walk back near to the entrance so that you are at the end of the Propulsion Gel and then reposition the blue portal to Position A. You should have a portal now on the angle surface, and on the wall below it. Start running along the Propulsion Gel and then when you reach the pool of Repulsion Gel, jump through the portal on the wall to fling out onto the floor above.

02 On your way up to this floor you will bounce off another pool of Repulsion Gel before coming to a stop on a portalable section of the floor. You need to reach the platform directly opposite the one you are on and the only way to do that is to use more Repulsion Gel. Look through the mesh to the floor below and place a blue portal beneath the dripping Conversion Gel pipe and then place an orange portal on the section of floor you landed on.

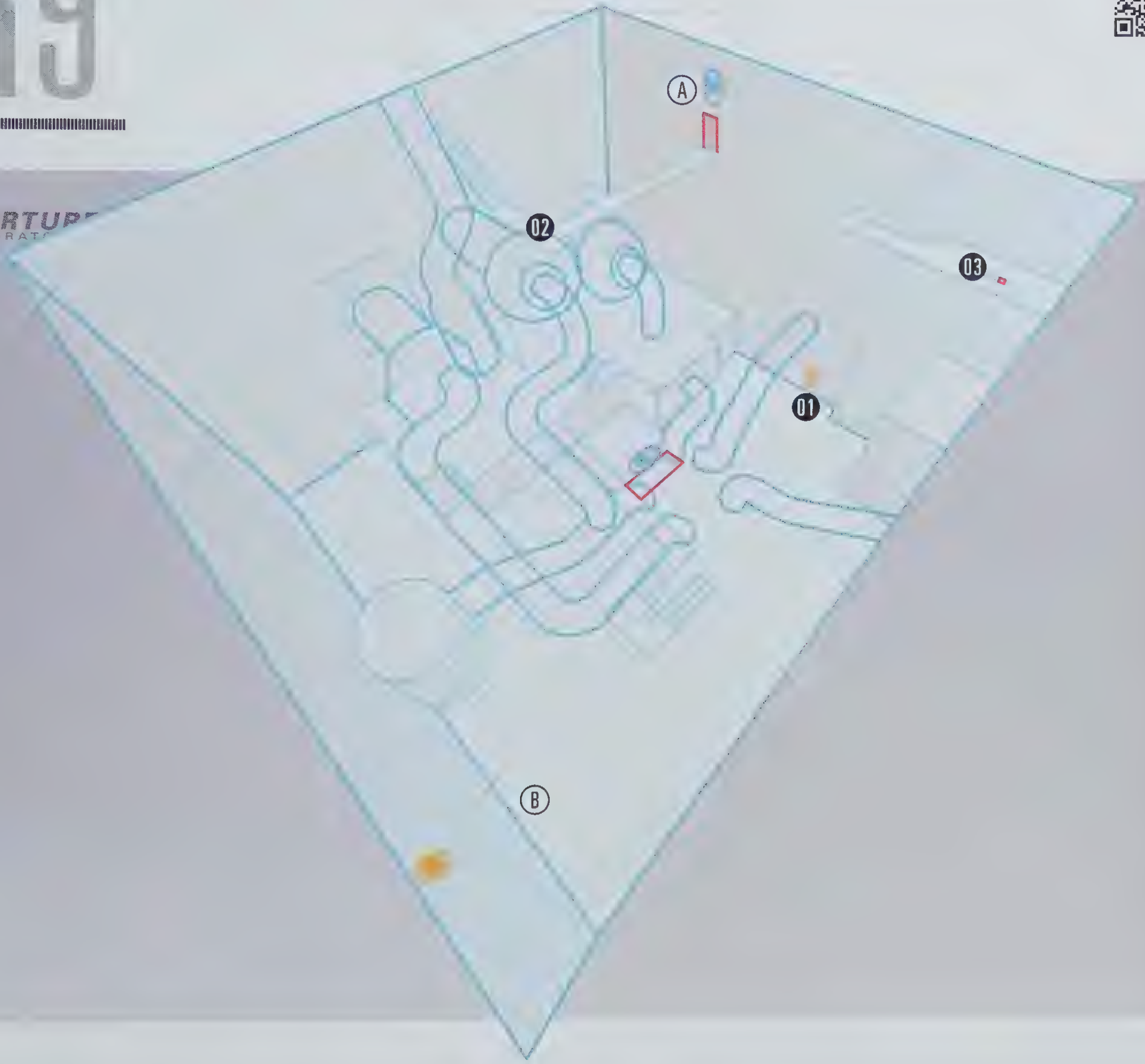
The Conversion Gel should flow through the portals and coat the ceiling above this section of floor with gel. If you now reposition the blue portal onto the coated ceiling and then place the orange portal beneath the dripping Repulsion Gel pipe below, you will coat the end of this floor with Repulsion Gel. To make it across to the other platform, you simply need to drop back down and repeat the earlier steps use to create the fling, after which you will bounce off the Repulsion Gel pools and onto the next platform.

03 Walk around behind the column on this platform and you will find that another Conversion Gel pipe is dripping gel through a mesh floor above. Look up through the mesh and place a blue portal on the wall on the other side and then place an orange portal on the coated floor near the column and drop through it. Walk to the end of the catwalk so that you can look up the tall shaft and then reposition the blue portal onto the angled surface on the left behind the mesh. Doing this will cause Conversion Gel to fly into the ventilation system and get dispersed all the way up the shaft. [→□ 02]

Look all the way up to the top of the shaft and reposition the blue portal onto the ceiling at the top, and then go back to the small alcove at the back of this area and place an orange portal on the wall. Step through the orange portal so that you drop down onto the small platform between the pipes and then start walking up steep incline. When you are unable to walk any higher, turn around, look through the ceiling, and place a blue portal onto the wall on the other side. Slightly back down the incline you should be able to find an area coated in Conversion Gel; place an orange portal onto this surface and then step through it to drop down into the next area.

Pump Station Gamma: Gel Pipe Hub

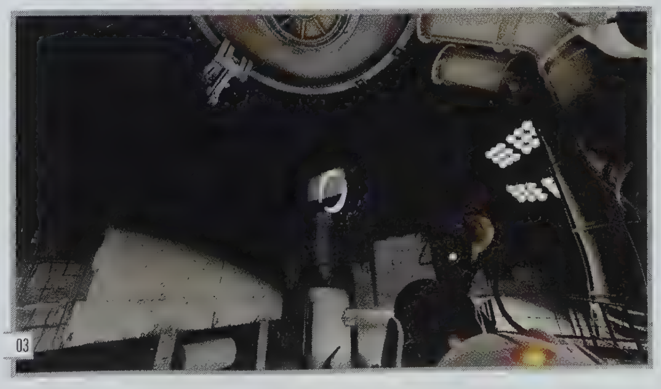
07_055



01 This large room is home to a convoluted series of pipes and catwalks, but the actual way out is through the giant hatch in the ceiling. In order to open the hatch, however, you will need to find a way into the Gel Pump Station control room that is high above the area you dropped in from. Place a blue portal above the door on the catwalk up high opposite the control room at Position A and then place an orange portal on one of the walls nearby and step through it.

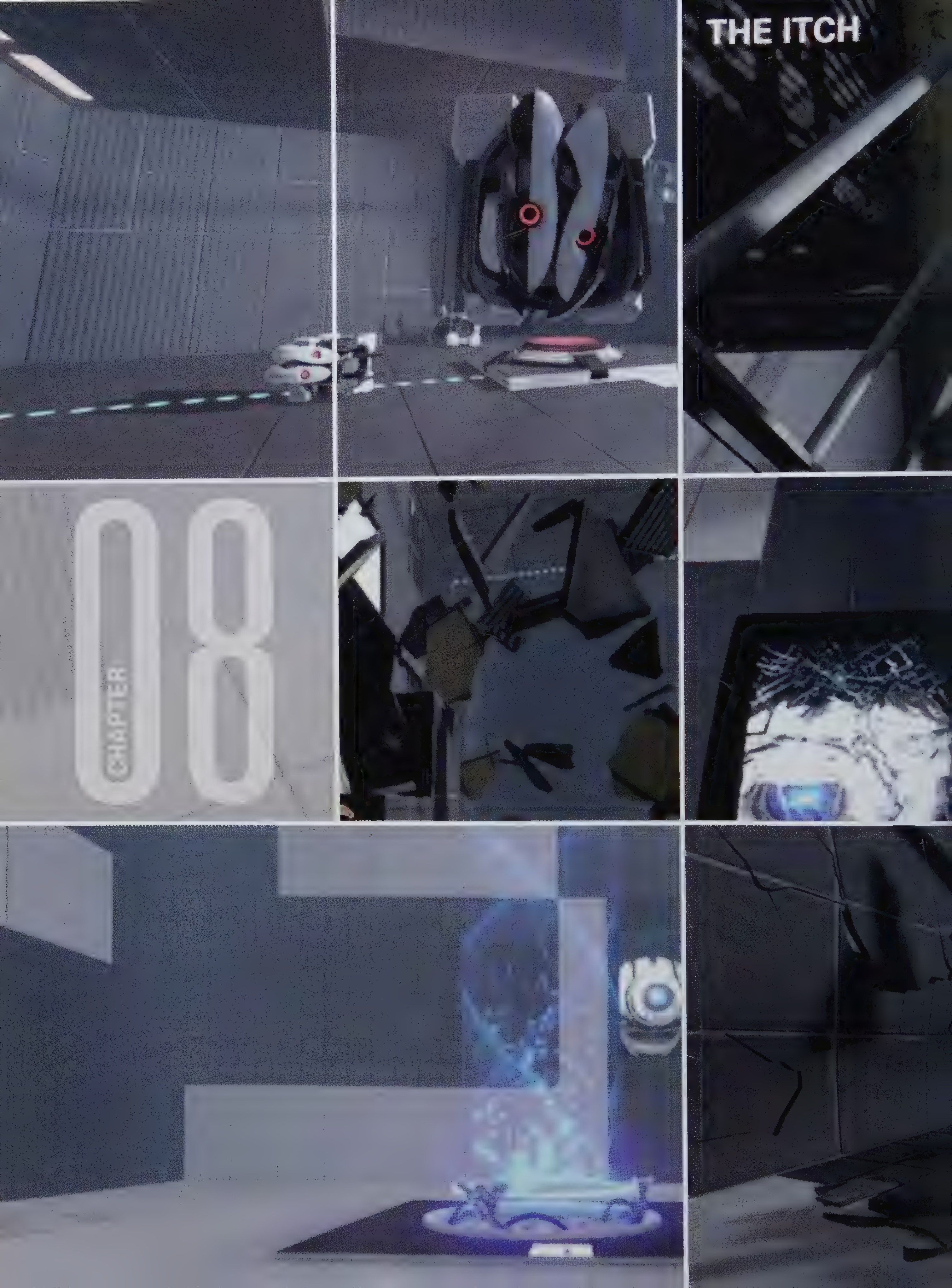
02 The only way to get into the control room is to fling across to it from the opposite side of the room. Walk along the catwalk until you come to a broken off section on the left overlooking the middle of the room and then look down and place a blue portal on the floor below. The orange portal that you will fling out of should be placed on the small portalable section of wall, up high on the right at Position B [→☐ 03]. Drop down into the blue portal, but make sure to keep holding forward during the fling, so that you have enough forward momentum to carry you into the control room.

03 Once you are in the control room, press the red switch on the console to initiate the hatch opening sequence. Once the hatch is fully opened, a small platform will get lowered down through it, and come to a stop beside the catwalks in the middle of the room. Drop down from the control room and then walk along the catwalks and step onto the platform, which will then cause it to start rising again. After the platform comes to a stop at the top of the hatch, step off it and go up the staircase to the right and then follow the corridor along to reach the elevator up to the next chapter.


03

CHAPTER 08

THE ITCH



11

01/11

Experimental Test Chambers

07_056

01 Step off the elevator and follow the catwalk along until you come to an office overlooking a Test Chamber. In this chamber, Wheatley is attempting to have tests completed without the use of a test subject by using his Franken-Turrets, but things are not progressing very smoothly. Turn away from the window and look through the broken grate next to the filing cabinet so that you can place a blue portal onto the wall on the other side.

Place an orange portal onto the wall in the office and then step through it to drop down onto another catwalk which you should follow along and get onto the small elevator platform at the end. Once the elevator comes to a stop, follow the next catwalk along and drop down into the corridor at the end, then go through the Emancipation Grill into the first experimental Test Chamber with the Franken-Turrets.

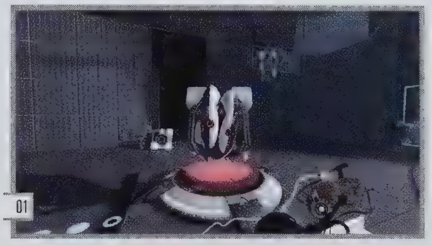
02 Follow GLaDOS' advice once you enter the chamber and solve the puzzle for Wheatley by placing one of the Franken-Turrets onto the button [→☐ 01]. GLaDOS will attempt to disable Wheatley by using a paradox when he returns to check on the results of the test, but he proves far too resilient to be overcome by it. He does, however, need more test subjects now, so once he opens the door, step through the Emancipation Grill and use the elevator at the end of the long catwalk to reach the next experimental Test Chamber.

03 This is the first of many fiendish tests developed by Wheatley and it requires you to use a Weighted Cube to press a button and keep the exit door open. The switch in the middle of the room controls the Cube dispenser that is located directly over the button, so as soon as you press the switch, the cube will drop onto the button and the door will open. To get to the other side of the moat, place a blue portal on the wall behind the button and then place an orange portal on the wall near the entrance and step through it.

Aperture Information Service

If you wait around in the Test Chamber instead of pressing the switch to complete the test you can defy Wheatley's instructions, and unlock the You Made Your Point Achievement/Trophy

04 Walk through the Emancipation Grill into the corridor on the other side, but instead of moving to the next test, Wheatley will come up with the idea of simply repeating the same test. Wait for Wheatley to open a hole in the wall and then follow that passageway back to the start of the testing area and complete the test again [→☐ 02]. The results were not quite to Wheatley's liking, however, so this time when you go through the Emancipation Grill, he will open the door on the other side and you can take the elevator to the next Test Chamber.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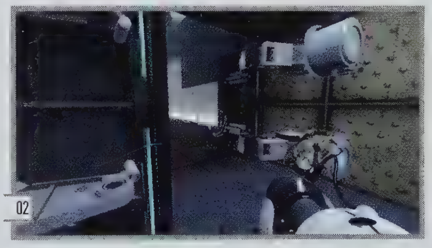
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Solitary Testing Procedure **Chapter 08: The Itch**

02/04

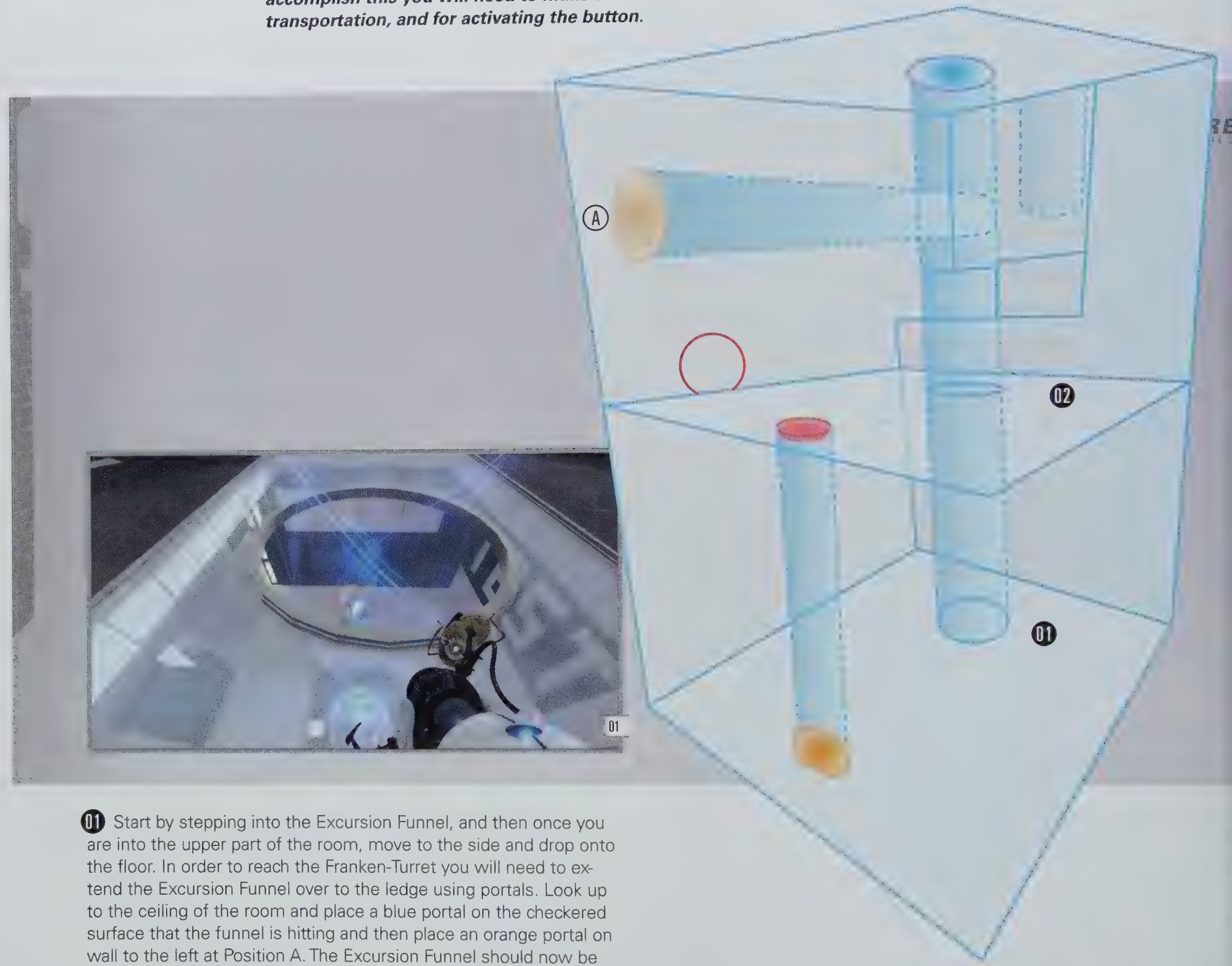
01

02/11

Wheatley Test Chamber 01

07_057

The first of Wheatley's real Test Chambers sees the introduction of Excursion Funnels. Anyone, or anything, that is placed inside an Excursion Funnel will automatically be carried along the same path in which the funnel is flowing. It is also worth remembering that while you are unable to move forwards or backwards along the funnel, you can always move laterally to step out of it. The aim of this test is to find a way of keeping the button activated so that the exit remains open and you can walk through it. To accomplish this you will need to make use of the Excursion Funnel both as a means of transportation, and for activating the button.



01 Start by stepping into the Excursion Funnel, and then once you are into the upper part of the room, move to the side and drop onto the floor. In order to reach the Franken-Turret you will need to extend the Excursion Funnel over to the ledge using portals. Look up to the ceiling of the room and place a blue portal on the checkered surface that the funnel is hitting and then place an orange portal on wall to the left at Position A. The Excursion Funnel should now be extending over to the ledge with the cube, so if you step into it you will be carried through the portals towards the cube.

02 Wait until you are directly over the ledge that the cube is sitting on and then drop out of the funnel onto it. Walk over and pick up the cube, and then drop down off the ledge with it and put it near the hole in the floor that the Excursion Funnel is passing through. The only way to get the cube to activate the button and stay in place is to extend the Excursion Funnel up to it.

If you look down through the hole in the floor, you will be able to see another checkered surface that is directly below the button. Reposition the orange portal so that it is on the lower checkered surface and the Excursion Funnel will extend straight up to the button [→☐ 01]. Now if you place the Franken-Turret into the funnel, it will pass through the portals and activate the button allowing you to exit through the door and take the elevator to the next test.

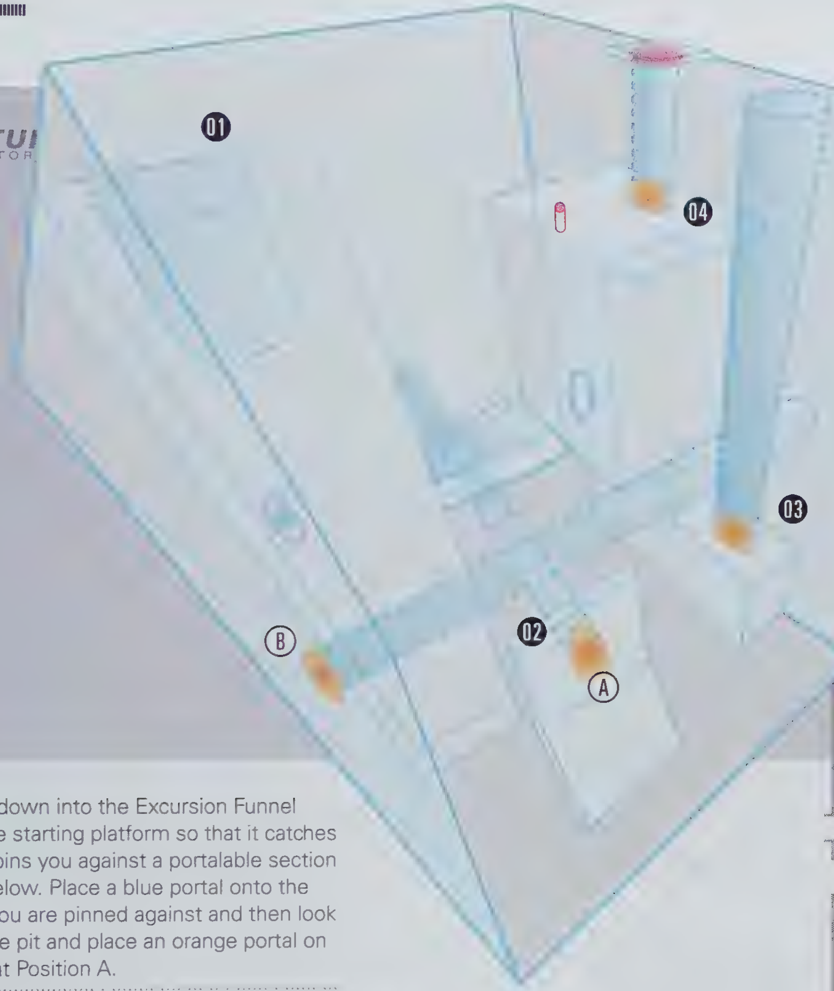
Aperture Information Service

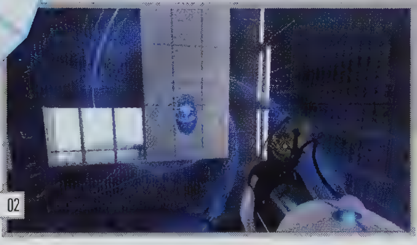
There are large monitors found on walls throughout Wheatley's Test Chambers that he uses for keeping an eye on the test subjects. If you manage to break eleven of them, you will earn the Smash TV Achievement/Trophy. For a detailed description of each monitor's location and how to break it, please refer to the Achievement/Trophy Guide in the Enrichment Completion Area Chapter.

02

Wheatley Test Chamber 02

The goal of this test is to find a way of both reaching the exit, and activating the button to open it. To accomplish this you will need to use portals to extend the Excursion Funnels off different walls so that you can travel around the chamber to the exit.

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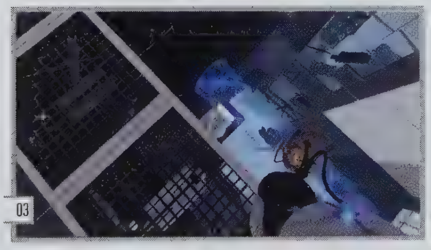

03

❶ Drop down into the Excursion Funnel below the starting platform so that it catches you and pins you against a portalable section of wall below. Place a blue portal onto the surface you are pinned against and then look across the pit and place an orange portal on the wall at Position A.

❷ When you pass through the portal, look to the left to locate another portalable section of wall and reposition the orange portal into the middle of the bottom three wall panels at Position B when you are directly in line with it [→☐ 02]. Do not rush this shot because if you place the portal too high on the wall, or too early you can easily fall into the pit below.

Make sure you always reposition the orange portal, because if you use the blue portal you will lose the Excursion Funnel. If you think you have missed the timing to place the portal, stay in the funnel because it will take you right back to your blue portal so that you can drop down and try again. If you place the portal correctly, however, you will drop straight into the repositioned Excursion Funnel and get carried over to the wall near the central platform.

❸ Wait until the funnel you are in pins you against the back wall and then look down and reposition the orange portal onto the checkered floor below. The funnel should now be coming out of the floor and will start carrying you up towards the platform; wait until you are above the platform and then step out of the Excursion Funnel onto it.

❹ Opposite the platform you are now on you will be able to see a Cube Dispenser on the ceiling that is housing the cube you need to activate the button and you will need to use funnels again to secure it. Walk over to the edge of the platform so that you can look down, and reposition the orange portal to Position B again. If you now hit the switch, the cube will drop down into the funnel below and be carried over to the checkered floor below the side of the platform. [→☐ 03]

Once the cube is over the checkered floor below, reposition the orange portal onto it so that the cube gets carried upwards and once it is close enough, pick it up and take it out of the funnel. Now that you have the cube, walk over and place it on the checkered section of floor directly below the button on the platform, and then reposition the orange portal beneath it. The funnel should now extend straight up, carrying the cube with it and pinning it against the button. As soon as the button is activated, a bridge will form between the platform and the exit door so that you can walk straight across and take the elevator to the next test area.

Test Summary

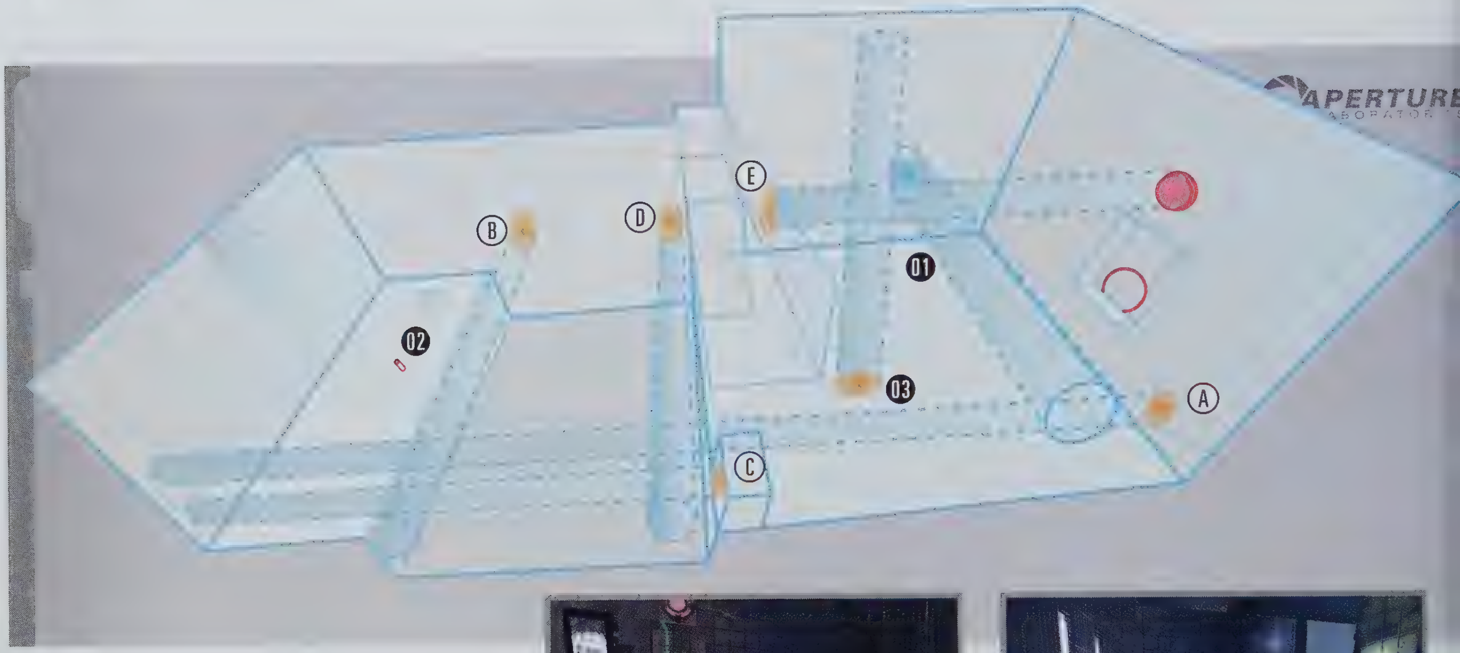
03

04/11

07_059

Wheatley Test Chamber 03

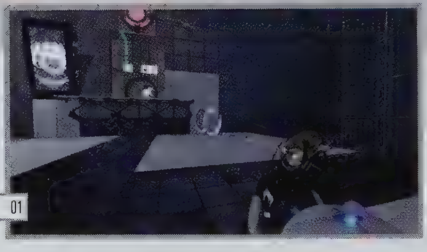
The aim of this test is for you to find a way of safely acquiring the cube from the dispenser in the middle of the chasm and then use it to activate a button and open the exit. To accomplish this you will need to use portals to extend the funnels over the chasm for both transportation and a means of securing the cube.



⓪① Wheatley is still in the process of building this chamber when you enter and you will need to wait while the other half of it moves along the railings. Start by placing a blue portal on the wall above the entrance that the Excursion Funnel is hitting and then place the orange portal on the wall to the right of the exit at Position A [→☐ 01]. You should now have an Excursion Funnel extending all the way across the pit; step into the funnel and allow it to carry you safely to the other side of the chamber.

⓪② Since there is nothing beneath the Cube Dispenser, you will need to extend the Excursion Funnel beneath it so that it can catch the cube as it falls. Reposition the orange portal to Position B so that it is on the closest section of portalable wall and then press the switch to release the cube. The funnel below should safely catch the cube, and then once it is pinned against the wall, you will need to change the position of the funnel in order to retrieve it.

Reposition the orange portal to Position C on the other side of the pit so that the funnel carries the cube back towards you. You need to use the Faith Plate to get back to the original side of the chamber, but if you were to step on it now you would simply hit the target on the wall and fall into the pit. Wait until the cube is safely above the floor and then reposition the orange portal to Position D so that it is as close to the target as possible [→☐ 02]. Now you can pick up the cube and step onto the Faith Plate with it and when you hit the wall you will drop into the Excursion Funnel nearby. Let the funnel carry you along until you are past the solid wall so that you can move out of it and drop down to the ground below.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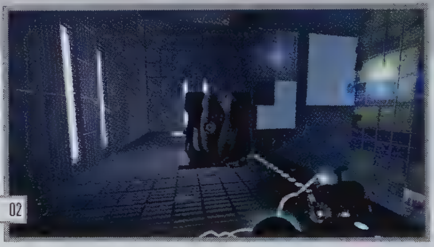

02

⓪③ For the final part of the test you will need to use the Excursion Funnels to both reach the platform near the exit and get the cube to activate the button. Thankfully, both things can be accomplished at the same time. Drop the cube onto the checkered section on the floor and then reposition the orange portal beneath it. The cube will now start rising towards the ceiling and once it is above head height, step into the funnel along with it.

Wait until you are near the ceiling and then reposition the orange portal onto the wall opposite the button at Position E. You should now drop down into the funnel below and start getting carried towards the button, once you are over the platform in front of the exit, move to the side and drop out of the funnel. The cube will carry on along the funnel once you have moved and activate the button so that you can access the elevator.

Aperture Information Service

An alternate method of completing the final step of this test is to use your portals to gain access to the platform near the exit. From there you can move the portals back onto the wall above the entrance and below the cube and move it towards the button as usual. This method gives allows you to watch the cube as it is traveling, so that you can reposition the funnel and lead the cube to the button as soon as it is high enough.

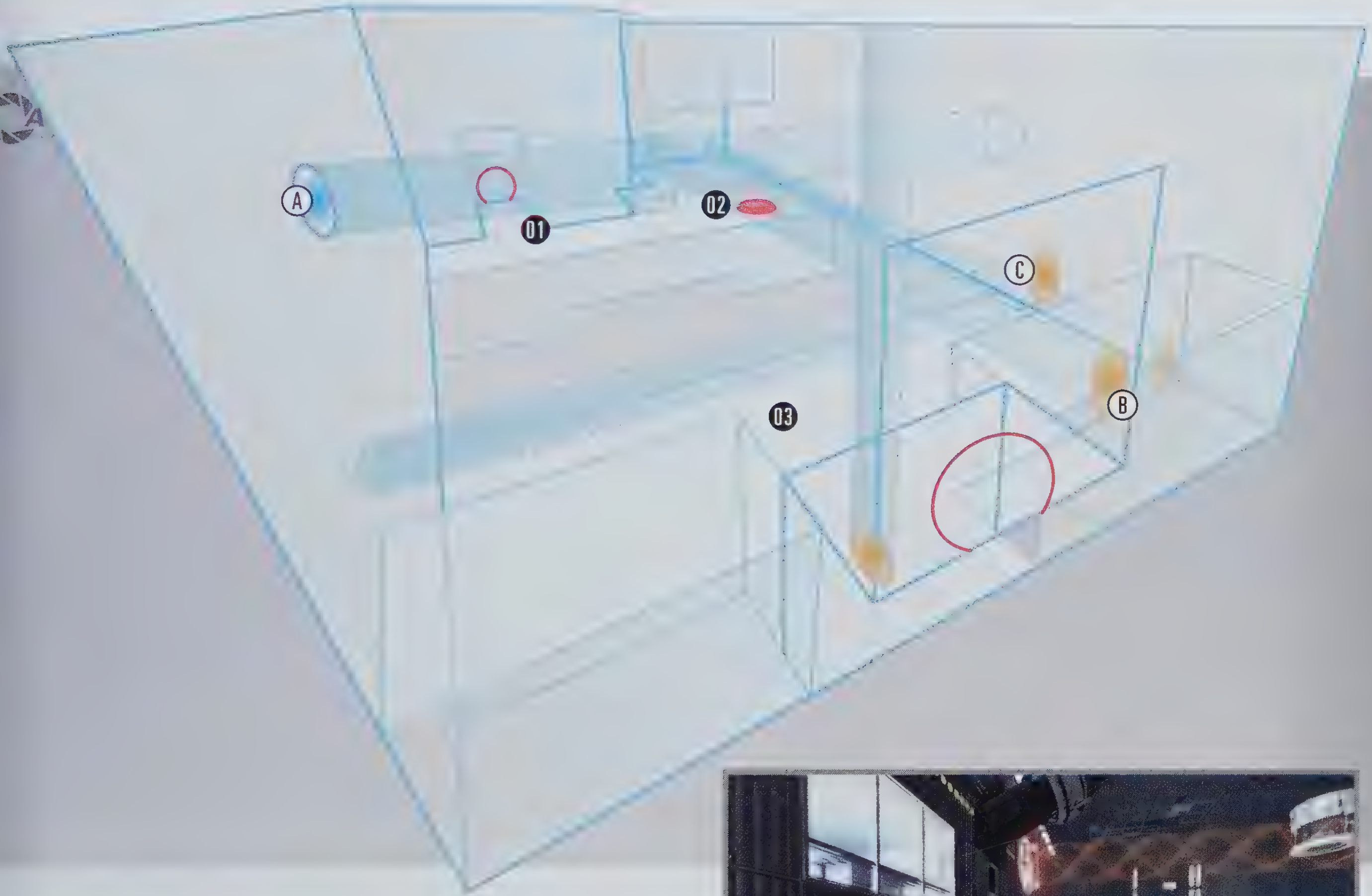
04

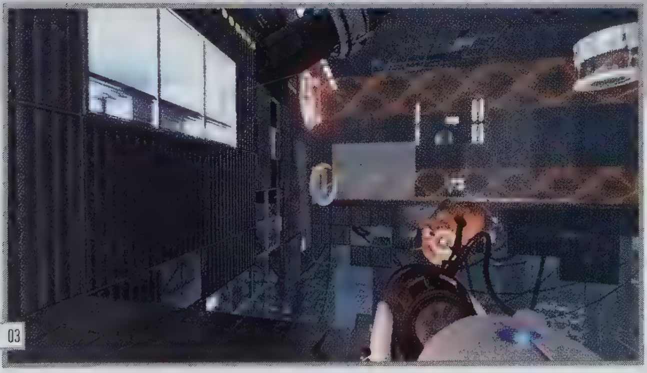
05/11

Wheatley Test Chamber 04

07_060

This Test Chamber introduces you to the polarity changing feature of the Excursion Funnels. Changing the funnel's polarity turns it from blue to orange, and makes objects travel in the opposite direction to normal. The aim of this test is to find a way of using the Excursion Funnel to retrieve the cube from the other side of the chasm and then travel across the chasm to the exit. To accomplish this you will need to use portals to reposition the funnel and then use the button to control the funnel's polarity as a means of crossing the chasm.

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01 You will first need to take care of the turret that is guarding the button from around the corner before you can make use of it. Place a blue portal at Position A on the checkered surface that the funnel is hitting, and then place the orange portal at Position B on the opposite side of the pit. The funnel should now extend directly over the button and pin the turret that was guarding it against the wall at the back. Now that the turret is out of commission, you can safely start trying to bring the cube over to place onto the button.

02 Reposition the orange portal so that it is at Position C, directly opposite the cube. This will cause the funnel to pick up the cube and pin it against the side wall, but if you step onto the button and reverse the polarity, the cube will start to start to travel back towards the orange portal **[→□ 03]**. Wait for the cube to pass through the orange portal and out of the blue one and then reposition the orange portal so that it is in the corner to the left of Position B and step off the button.

The cube should now travel back through the blue portal and start moving along the funnel towards this side of the chamber. Once the cube is close enough, take it out of the funnel and place it onto the button. With the polarity now reversed again, you can step into the funnel and travel across to the other side of the chamber.

03 Drop out of the funnel once you are over solid ground, but you will be unable to use it to reach the ledge with the exit at this time because it is moving in the wrong direction. Move the orange portal back to Position B so that it knocks the cube off the button and then move it again so that it is on the floor just in front of the ledge. You can step into the funnel and it will carry you up towards the ceiling and once you are high enough, drop out of the funnel on to the ledge and walk through Emancipation Grill to reach the elevator.

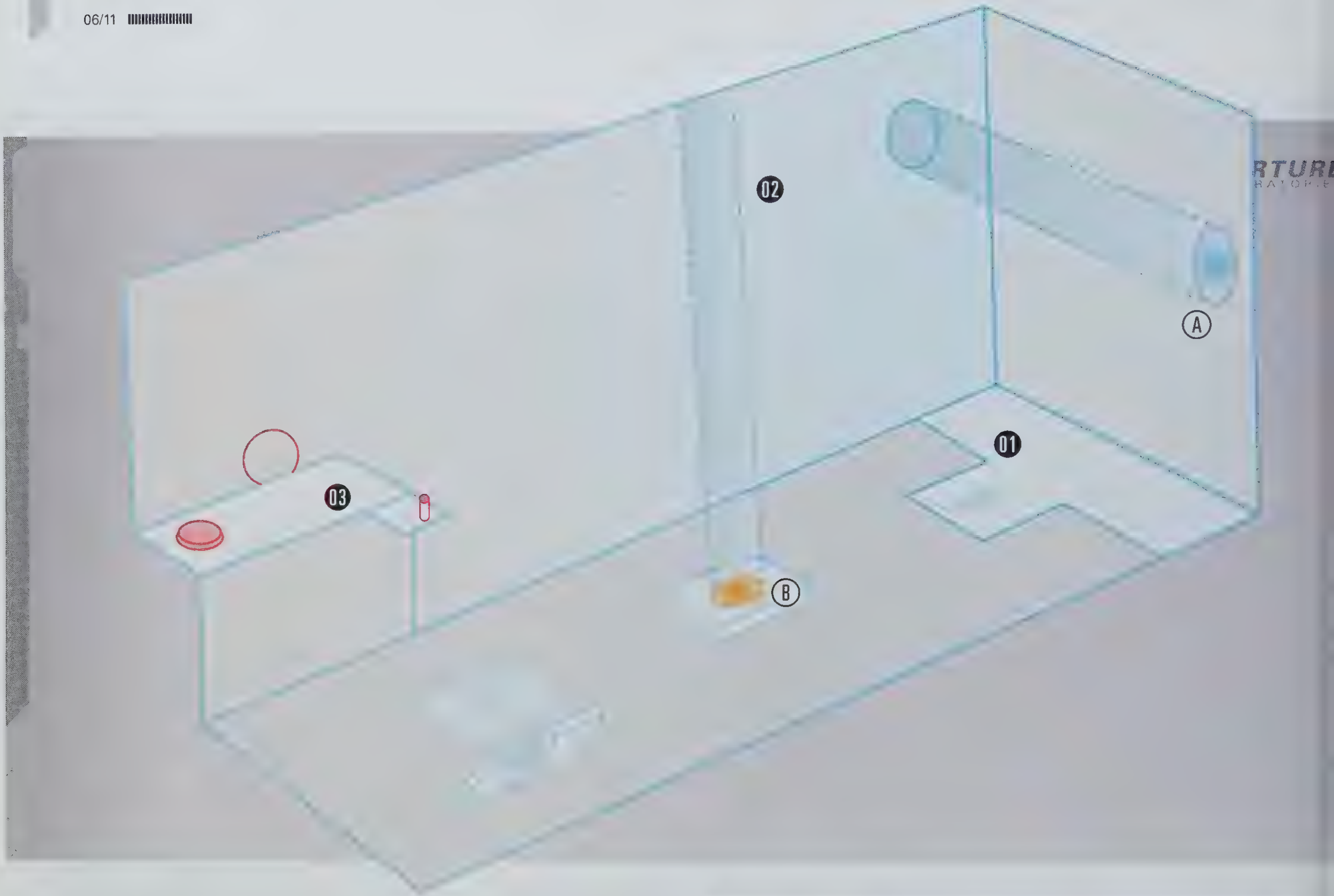
05

06/11

Wheatley Test Chamber 05

07_061

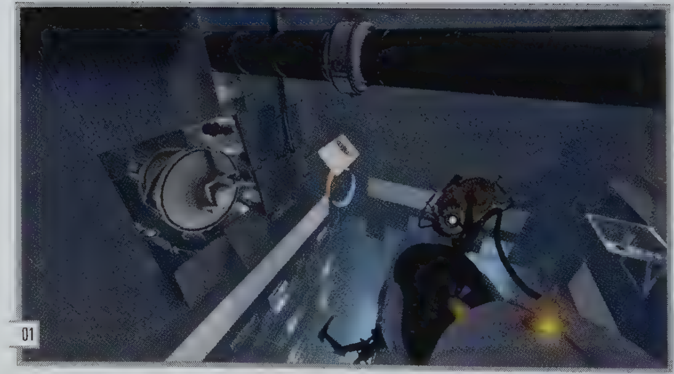
The aim of this test is to find a way of getting both you and a cube across the bottomless pit and up to the exit. To accomplish this you will need to use the Excursion Funnels to generate enough momentum for successful flings across the pit.



01 If you were to step on the Faith Plate straight away, you would get propelled over to the furthest platform, which would get you no closer to the exit. Place a blue portal on the checkered surface at Position A where the funnel is hitting, and then place an orange portal on the surface of the central platform at Position B. Now when you step onto the Faith Plate you will get caught by the funnel and be carried up to the ceiling.

02 Once you reach the ceiling, reposition the blue portal onto the angled surface at Position C, so that you drop down through the orange portal and fling across to the alcove near the exit. [→☐ 01]

03 In order to get the cube so that you can place it onto the button you will need to repeat the same steps you used to reach platform, so start by moving the blue portal back to Position A so that the funnel is extending upwards again. Now when you press the switch the cube will drop onto the Faith Plate and get catapulted into the funnel. Wait for the cube to get near the ceiling and then reposition the blue portal back to the angled surface at Position C so that it gets flung across into the alcove. Once you have the cube, place it onto the button and go through the doorway to the elevator.



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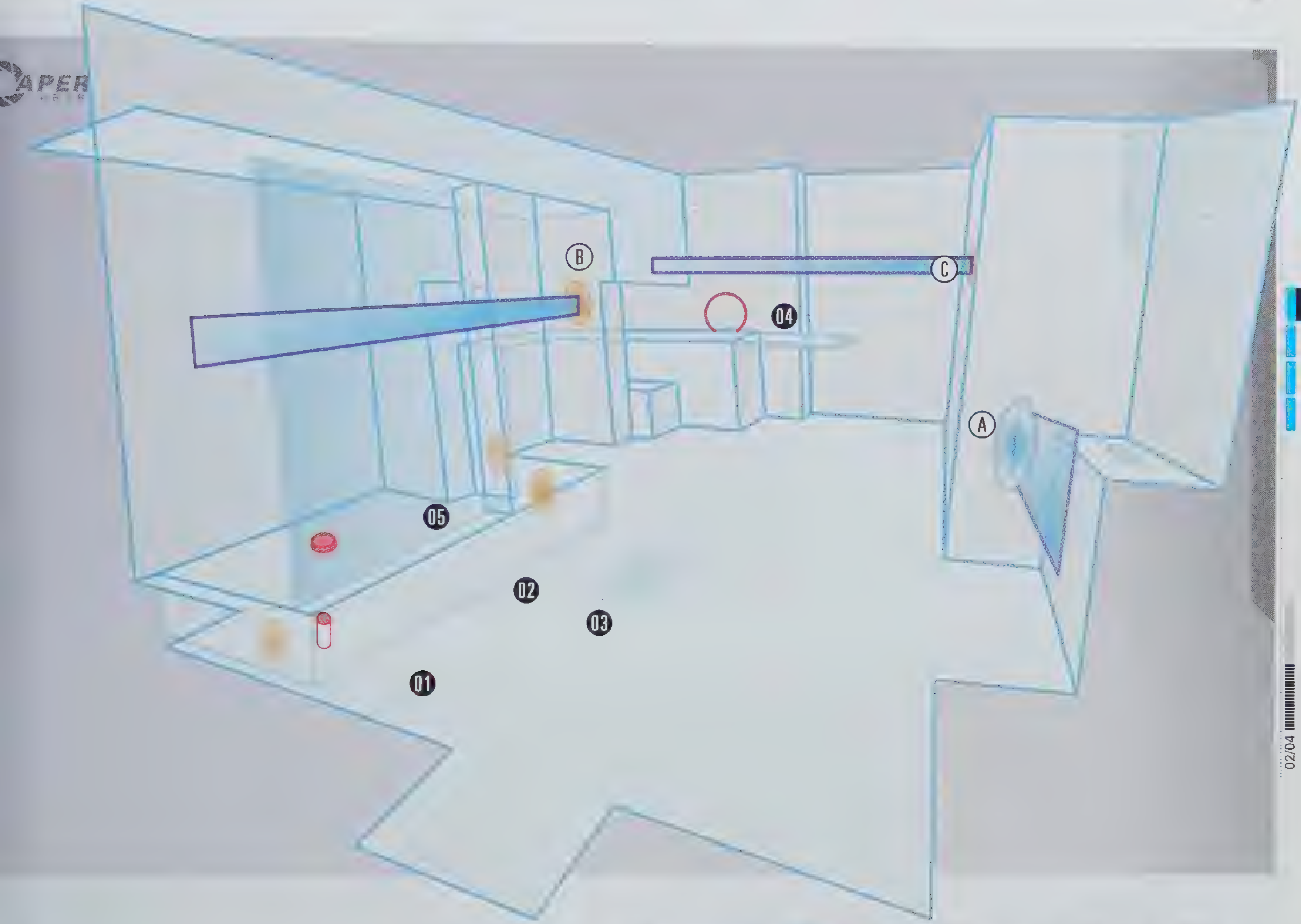
06

Wheatley Test Chamber 06

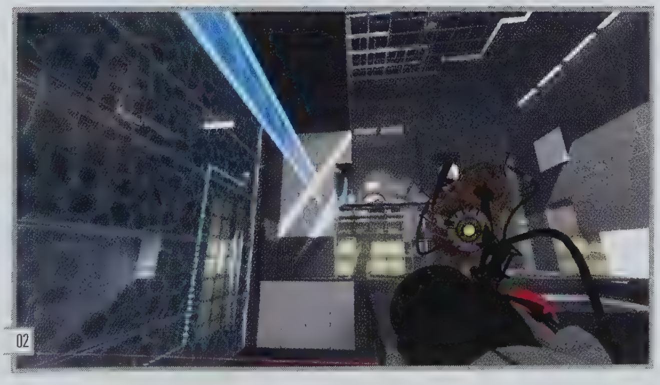
The aim of this test is to find a way of safely acquiring the cube and then using it to activate the button behind the Emancipation Grill to open the exit. To accomplish this you will need to use portals to extend the Light Bridges into positions to block the forward progress of you and the cube after using the Faith Plate.

07_062



01 If you press the switch to activate the Cube Dispenser straight away, the cube will drop down onto the Faith Plate below the dispenser and get catapulted into the Emancipation Grill and be destroyed. In order to stop this from happening you will need to use a Light Bridge to block the path of the cube and cause it to drop down into the pit in front of the Emancipation Grill. Place a blue portal at Position A on the small surface that the Light Bridge is hitting and then place the orange portal at Position B in the middle of the surface to the back of the pit and hit the switch. [→☐ 02]

02 The position that the cube lands in is entirely random, so depending on where it is, you will need to use different methods to retrieve it. The pit is guarded by a row of turrets behind a mesh fence, so you will need to be careful no matter what you do. If the cube landed near the mesh, you will need to place a blue portal in the pit, as close to the mesh as possible, and then place the orange portal on the wall on the right of the main room and step through it.



Once you are in the pit, you will have to quickly run out and grab the cube and then retreat back to safety and step through the portals again back to the main part of the chamber. Normally when the cube lands near the mesh like this, it will end up close to the front or back of the pit so you will not have to move out very far.

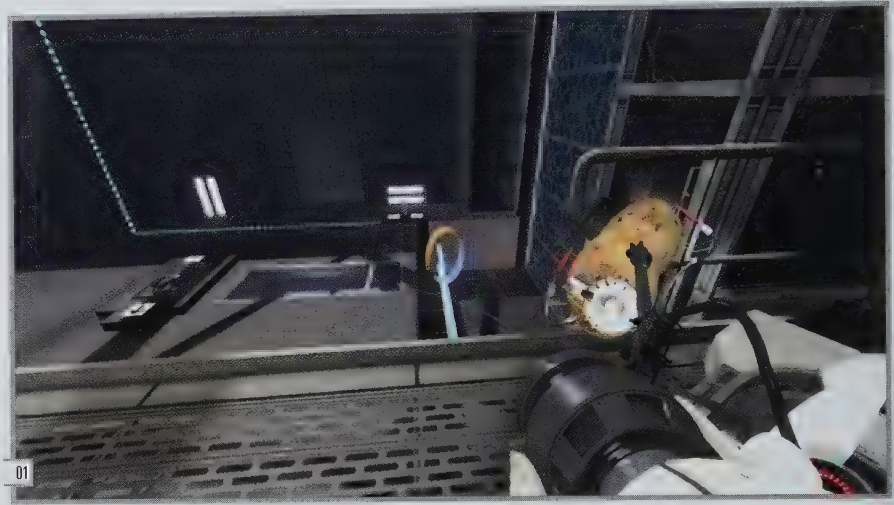
Sometimes, however, the cube will land close to Emancipation Grill and be too far to run out and grab safely. When this happens, you will need to block the turrets using a Light Bridge by only repositioning the orange portal onto one of the surfaces into the pit and leaving the blue one in place on the surface opposite the Light Bridge Generator.

Once the turrets have been blocked you can simply drop down into the pit and retrieve the cube, and then step through the orange portal to drop down back into the main part of the chamber. Occasionally, the cube will also bounce off the Light Bridge straight onto the floor in the main part of the chamber, which will save you having to go into the pit at all.

03 Once you have the cube you will need to begin the process of getting the cube over to the button. If you were to step onto the Faith Plate normally, you would go flying over the platform that you need to land on, so like with the cube, you need to use a Light Bridge to block your flight. Reposition the orange portal onto the surface at Position C so that the Light Bridge extends above the platform. Pick up the cube once the Light Bridge is in place and then step onto the Faith Plate to get catapulted into the Light Bridge and land on platform below.

04 Move along the walkway a little after you land and then place the cube onto the ground. Since the button is in the direct line of sight of the turrets you will need to block their fire using the Light Bridge and do that simply repositioning the orange portal onto the wall at the front of the pit [→☐ 01]. After making the pit safe, you can pick up the cube and carry it along the walkway and then drop down into the pit behind the Emancipation Grill and place the cube onto the button.

05 The only way out of the pit is to use portals, but before you start repositioning them, you should walk into the small alcove beneath the walkway so that you are out of the turrets' lines of sight. Once you are in the alcove, place a blue portal up high near the walkway and then place the orange one on the wall nearby and step through it. With the test now complete, you can walk straight the exit and into the elevator to reach the next chamber.



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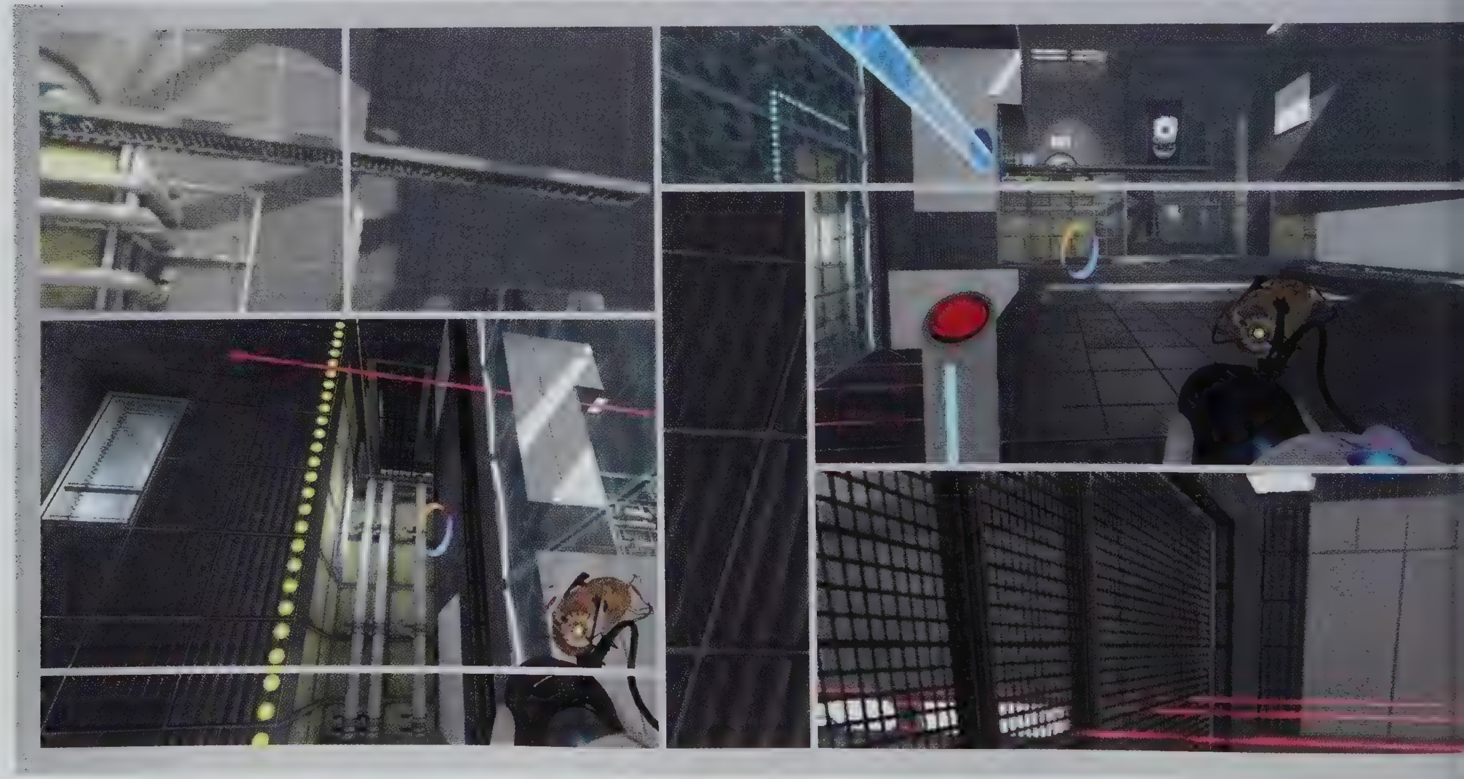
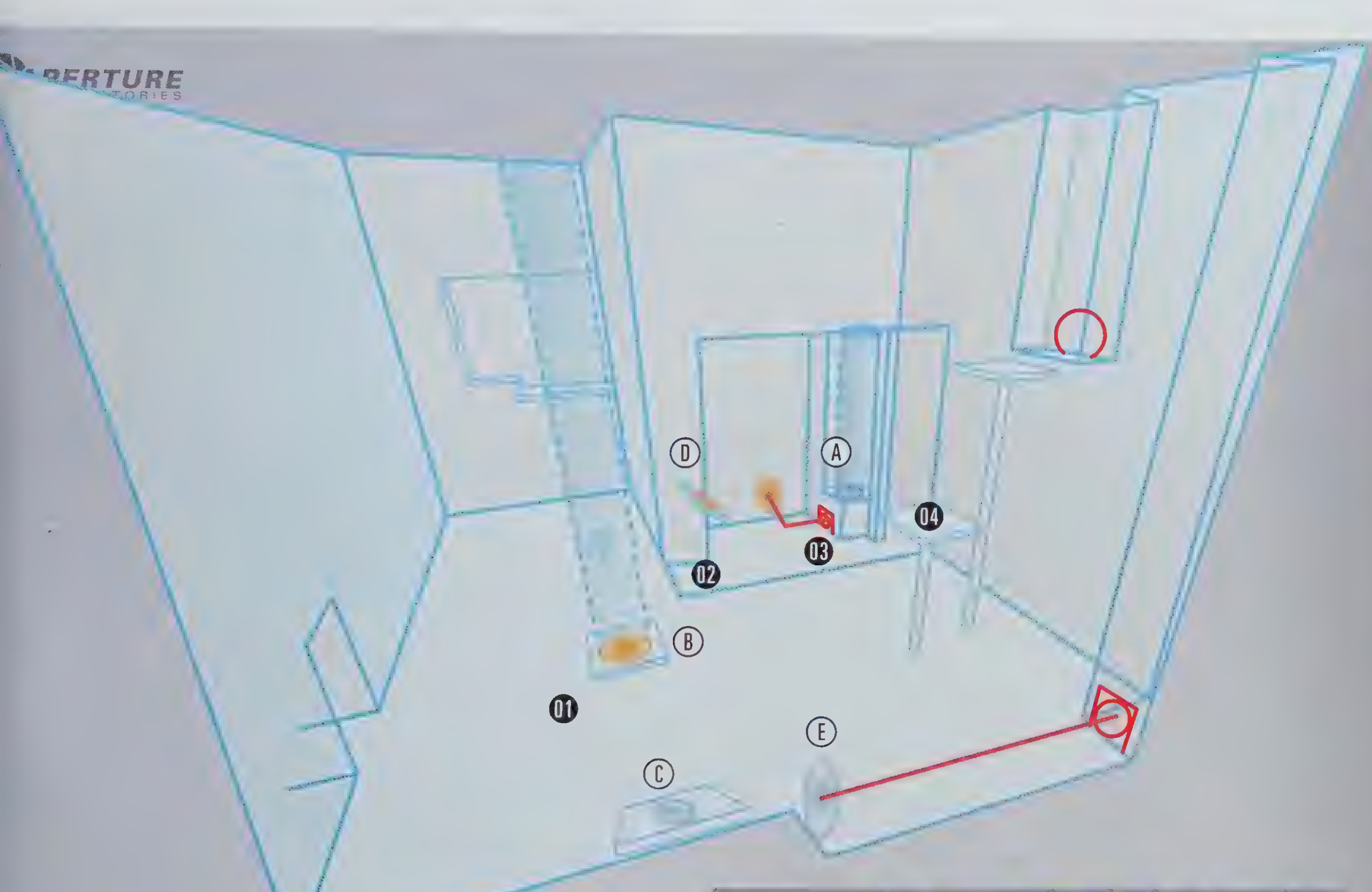


11

Wheatley Test Chamber 11

The aim of this test is to find a way of controlling the height of the two moving platforms to create a path up to the exit. To accomplish this you will need to acquire both cubes by using the Excursion Funnels to gain height and then use flings to reach the cubes. After acquiring the cubes you will need to use them in the correct sequence on the beams to control the platforms.

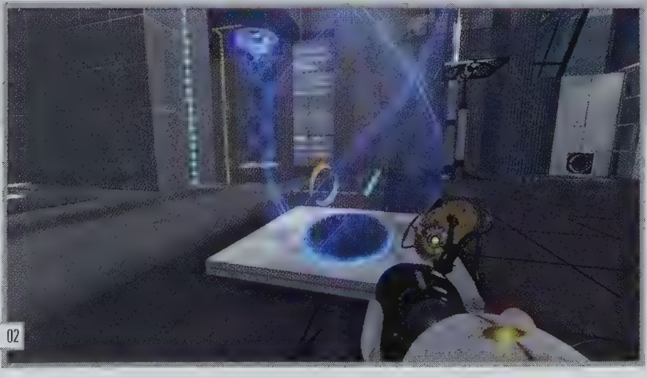
07_063



01 You will need to get the Franken-Turret first before you can get the Redirection Cube and to reach it you will need to fling across to the ledge, which means gaining a lot of momentum. Place a blue portal on the surface below the Excursion Funnel generator at Position A and then place an orange portal on the checkered floor near the entrance at Position B. [→☐ 02]

The Excursion Funnel should now be extending up towards the button on the ceiling, so step into it to start gaining height. Once you are near the top of the chamber, reposition the blue portal onto the angled surface at Position C so that you drop down through the orange portal and get flung across to the ledge. Pick up the Franken-Turret after landing on the ledge and then drop back down to the floor below with it.

02 Carry the Franken-Turret across the chamber into the pit and then use it to block the beam so that the Excursion Funnel is no longer being generated. To get out of the pit you will need to reposition the orange portal onto the side wall and then step through it to drop out of the blue portal. Now that the Excursion Funnel is not there to block your path, you can start trying to retrieve the Redirection Cube. Walk back over towards the pit and reposition the orange portal again onto the angled surface at Position D and then step onto the Faith Plate nearby to get catapulted over to the ledge with the Redirection Cube.

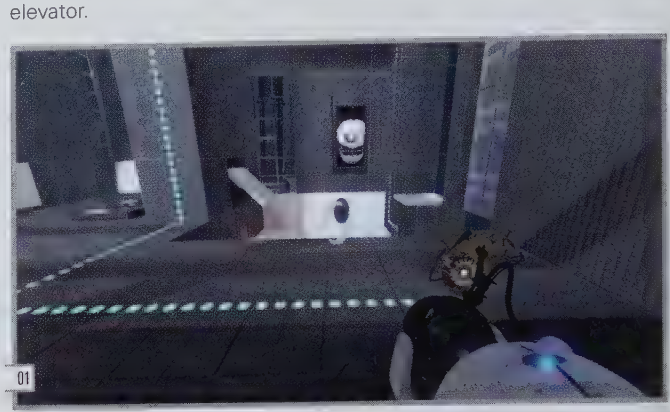

02

03 Pick up the Redirection Cube after you land and drop down from the ledge with it so that you can carry it over to the beam. Place the Redirection Cube on the floor so that it is reflecting the beam onto the portalable wall to the side of the pit. Reposition the orange portal so that it is on the wall at the point that the beam is hitting and then pick up the Franken-Turret and step through the portal. You may take some damage from the beam as you jump through the portal but this will only be minor.

04 Set the Franken-Turret down on the checkered floor at Position B and then reposition the blue portal so that it is on the wall opposite the other beam receptacle at Position E. With the beam now hitting the receptacle, the first of the two platforms will lower down to the ground so that you can step onto it. Once you are on the platform, reposition the blue portal onto one of the other walls nearby so that the beam no longer hits the receptacle, causing the platform to rise back up. [→ 01]

From this elevated position, you will be able to see back down into the pit, so reposition the blue portal again so that it is beneath the Redirection Cube. Doing this will move it out of the way so that you can restore power to the Excursion Funnel Generator. Reposition the blue portal to Position A beneath the funnel generator and then place the orange portal back at Position B below the Franken-Turret.

The Excursion Funnel should now be extending up to the button on the ceiling again, this time carrying the Franken-Turret with it at the way up to the button. As soon as the cube hits the button, the next platform will lower so that you can step onto it; as soon as you are on that platform, reposition the blue portal to any surface to that it rises up again and you can go through the Emancipation Grill to the elevator.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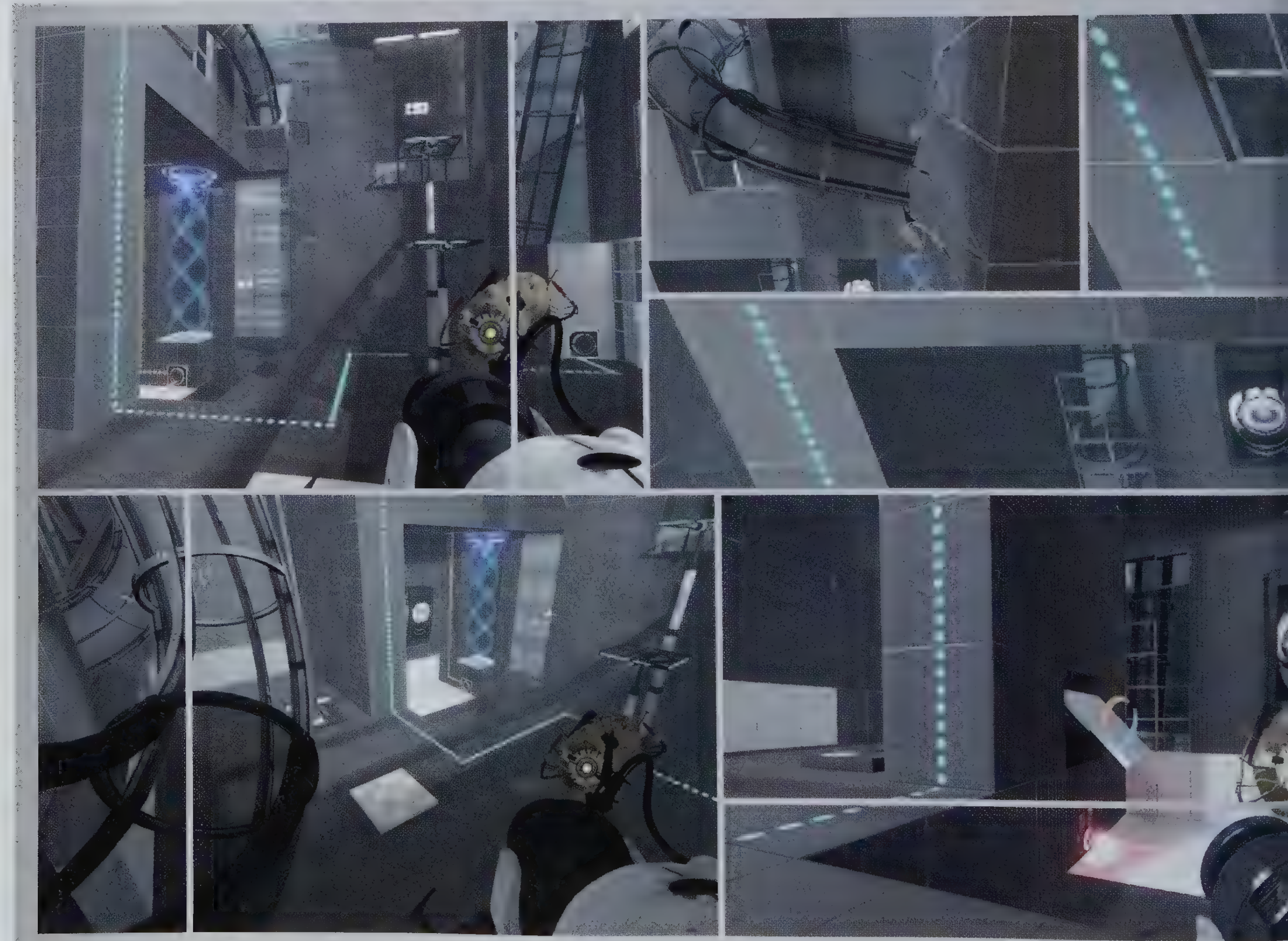
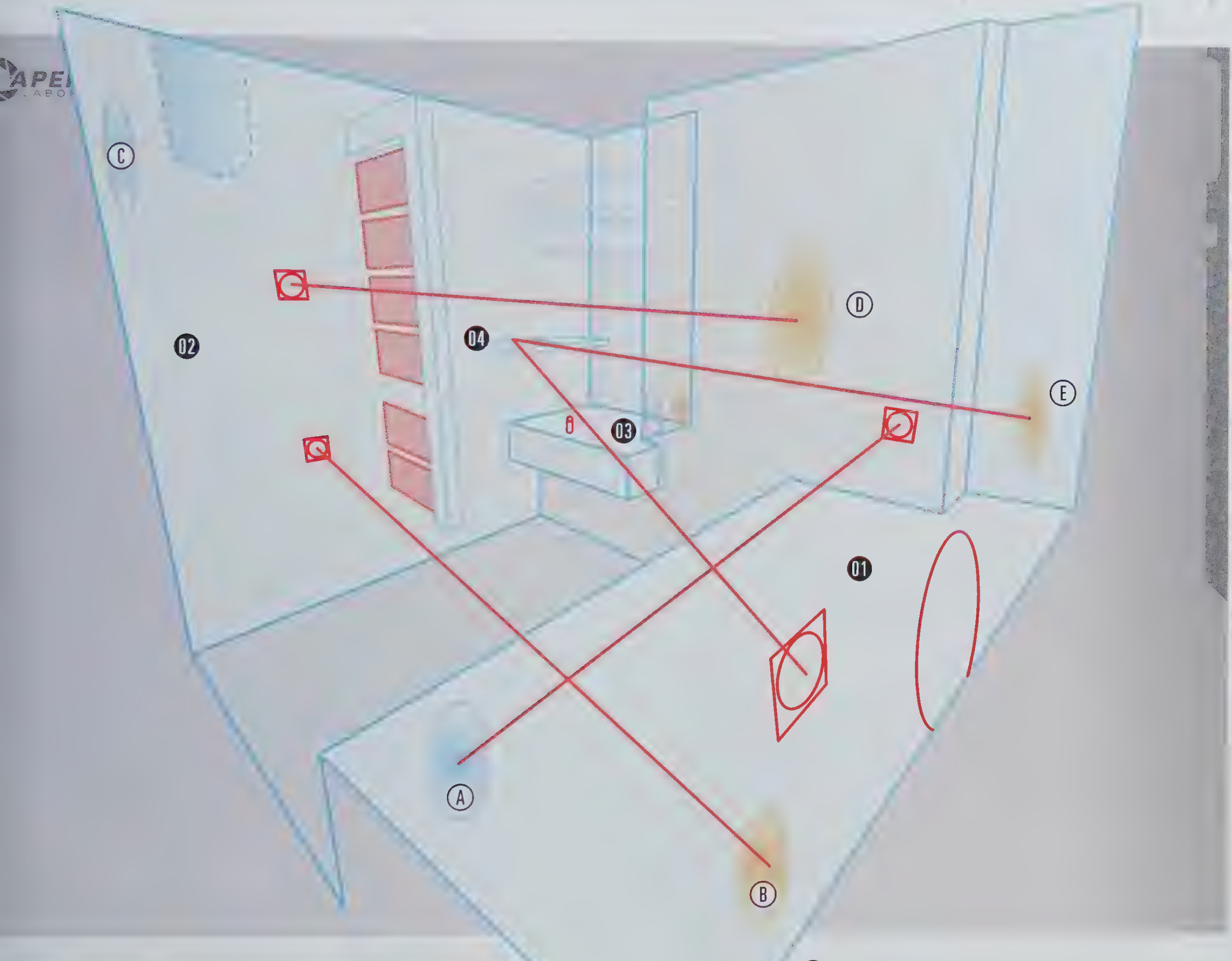


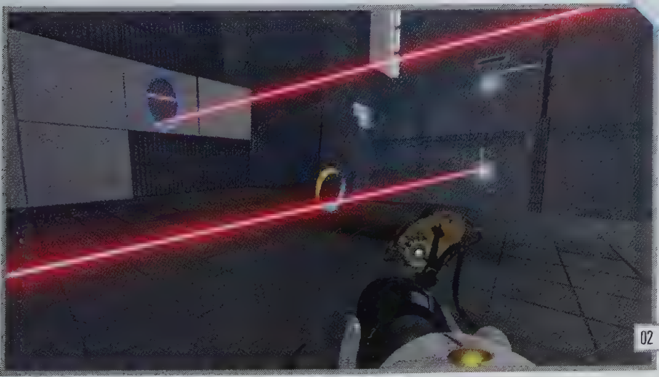
12

Wheatley Test Chamber 12

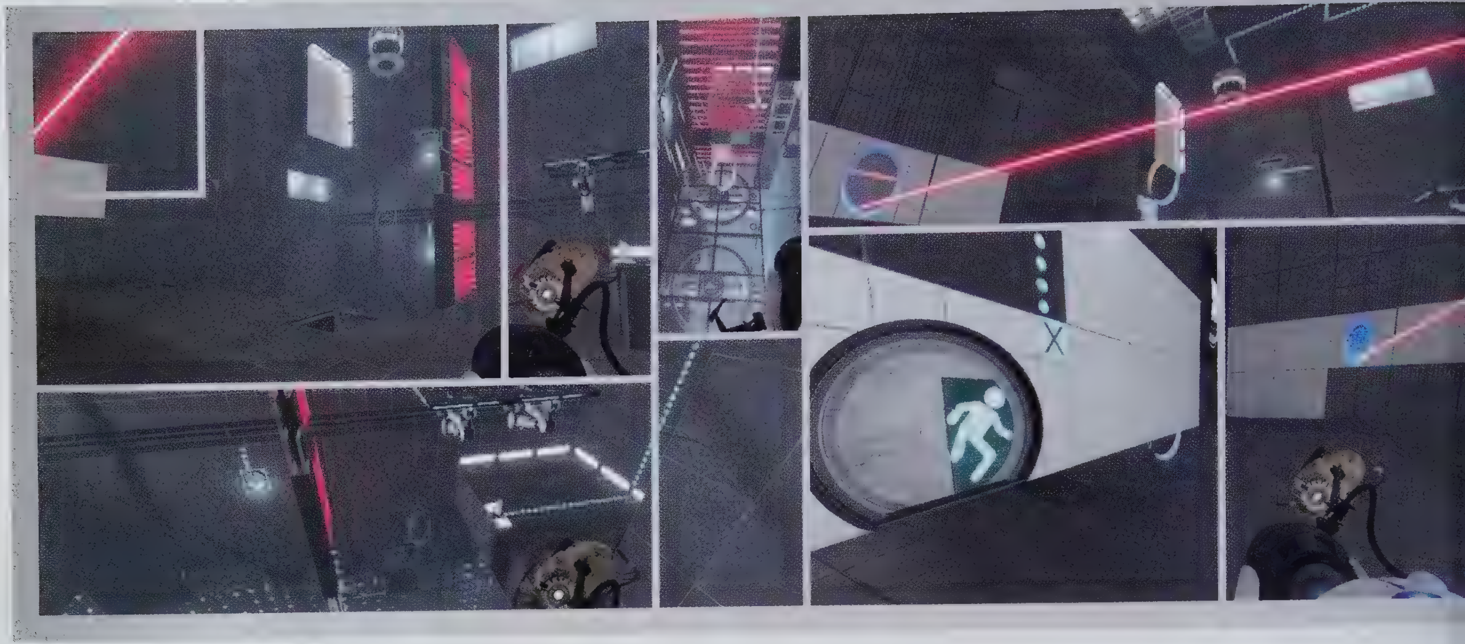
The aim of this test is to find a way of controlling the moving platform and using it to safely retrieve a Redirection Cube so that you can manipulate the beam. To accomplish this you will need to use portals for altering the path of the beam and controlling the platform, while also navigating past the Laser Grill safely so that you can retrieve the Redirection Cube.

07_064





01 Place a blue portal onto the wall opposite the entrance at Position A and then place the orange portal onto the left wall at Position B so that the beam hits the bottom receptacle [→☐ 02]. The only way of landing on the platform is by dropping down onto it from the large portalable wall in the far corner. Wait for the platform to move close to the wall and then reposition the blue portal onto it at Position C. This will also stop the beam from hitting the receptacle, stopping the platform in place. Since the platform is no longer moving, you can step through the orange portal at any time to drop down onto it.



Aperture Information Service

It is actually possible to make it straight across to the alcove with the switch, by using the advanced portal ledging technique. If you place the orange portal at Position B and the blue portal at Position C, you can step through onto the portal ledge and actually see the portalable wall in the alcove. While you are on the ledge, if you reposition the orange portal onto the wall in the alcove, you can quickly step back through the blue portal before it pushes you all of the way out and make it into the alcove. Using this method you will not need to wait for the platform to move across the moat and then travel back through the Laser Grill with it, saving a considerable amount of time.

02 Now that you are on the platform, you will need to start it moving again so that you can reach the switch, which also means passing through the Laser Grill. Reposition the blue portal back to Position A so that the beam hits the lower receptacle again and powers the moving platform.

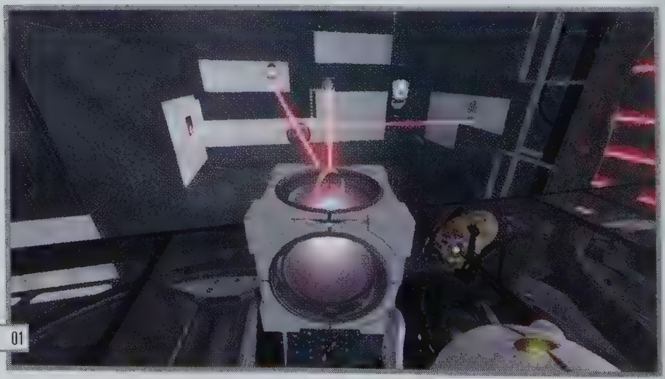
Move to the furthest edge of the platform as it moves towards the Laser Grill and the once the front half of it has passed through the field, reposition the orange portal to Position D. This position is directly above the previous one so it is easy to line up. It will also allow the beam to hit the upper receptacle and disengage the Laser Grill, which then allows you to walk across the platform to the other side of it. Once you are past the field, move the orange portal back to Position B again to start the platform moving. When the platform passes into the alcove, jump down to the floor below.

03 Wait for the platform to move all the way back to the other side of the room so that it is beneath the Cube dispenser and then reposition the blue portal back to Position C again to stop it from moving. If you now press the switch to activate the Cube dispenser, the Redirection Cube will drop down safely onto the platform. Reposition the orange portal so that it is on the portalable wall to the side of the alcove and then step through it to drop back down onto the platform.

04 You will need to reach the other side of the Laser Grill again at this time, so follow the same steps that were used previously to move the platform and disengage the Grill. You do not need to worry where the Redirection Cube is on the platform because the Laser Grill has no effect on it. Once you are on the other side of the Field, move the platform a bit more so that it is close to the alcove and then reposition the orange portal to Position E. The beam should now be firing through the portal and hitting the wall just behind the platform.

Use the Redirection Cube to reflect the beam into the receptacle near the exit and then set the cube down on the platform [→☐ 01]. To get back over the chasm to the exit you will need to drop down into the alcove, and then reposition the blue portal and step through it. Once you are back over the other side, move the blue portal back onto the wall at Position A again so that the beam can hit the receptacle and reopen the exit.

05 The elevator on the other side of the Emancipation Grill has been destroyed because of the turmoil the facility is in, so in order to proceed, you will need to step into the Excursion Funnel that Wheatley creates for you. The intended exit can be seen in the distance at the end of the funnel, but in order to save you from impending doom, Wheatley will disengage the funnel when you are about halfway along it. After crashing through the roof of the office below, walk out of the door and then jump off the broken catwalk down to another catwalk below. Follow the lower catwalk along for a short distance and then drop through the opening into the next Test Chamber.



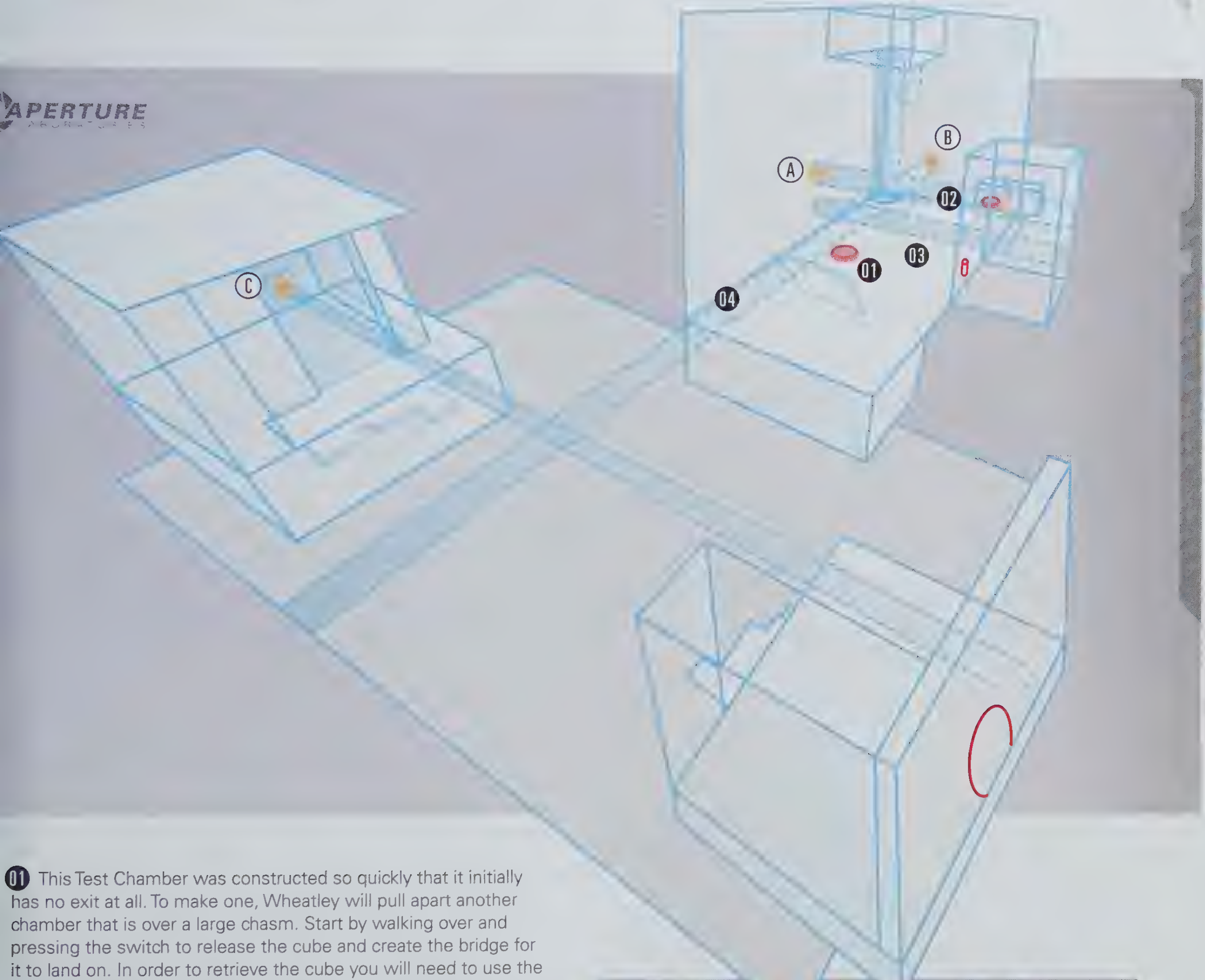
01

15

Wheatley Test Chamber 15

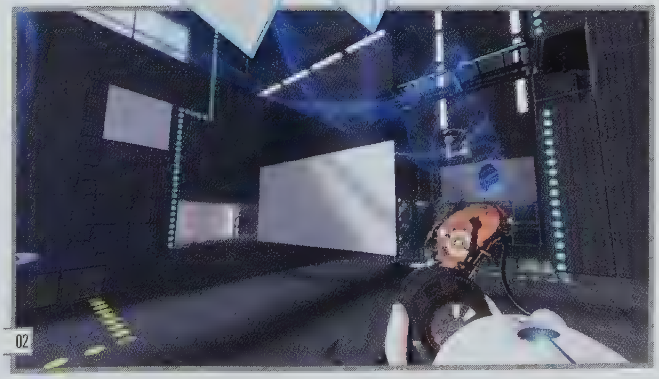
The aim of this test is to use an Excursion Funnel to create a pathway leading to the exit. To accomplish this you will first need to use the funnel, in conjunction with portals for extending it across different areas, to manipulate the other test elements and get them into the right position.

07_065



⓫ This Test Chamber was constructed so quickly that it initially has no exit at all. To make one, Wheatley will pull apart another chamber that is over a large chasm. Start by walking over and pressing the switch to release the cube and create the bridge for it to land on. In order to retrieve the cube you will need to use the Excursion Funnels, so walk over and step onto the button to activate the generator. Once you are on the button, place a blue portal on the checkered surface on the ceiling above the funnel generator, and then place the orange portal on the wall near the button at Position A.your portals to the main chamber.

You may need to adjust the position of the orange portal slightly, depending on where exactly on the bridge the cube landed, but when it is correctly placed, it should pick the cube up off the bridge and pin it against the back wall. Lower down the wall that the cube is being pinned against there is another portalable section of wall; reposition the orange portal onto this wall directly below the cube so that it falls down into the new funnel position and gets carried back towards your location. [→☐ 02]

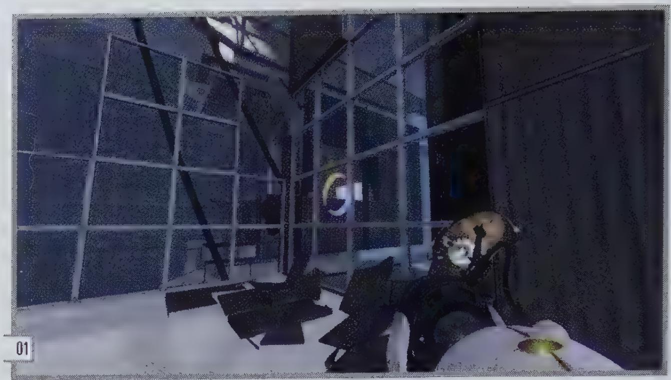


02 As soon as the cube is over solid ground, step off the button to deactivate the funnel so that it can fall down. For the next step in the test you will need to use the freshly acquired cube to activate the button controlling the Propulsion Gel. Aim through the hole in the glass and place a blue portal on the other side, and then place an orange portal on the wall close to the glass and step through it with the cube. Place the cube onto the button to activate the gel flow and then step back through your portals to the main chamber.

03 Now that the gel is flowing, you will need to use the funnels as a delivery system so that you can coat the ramp and the length of floor leading up to it with gel. Step onto the button to activate the funnel generator, and then place the blue portal on the ceiling above it. The orange portal should be placed on the side wall at Position B so that the funnel gets extended beneath the gel pipe.

The flowing gel will get caught in the funnel and move along with it like any other item; wait until the gel in the funnel stretches across the length of the chamber and above the ramp, and then step off the button. When the funnel deactivates, the gel will drop down and coat the floor below, giving you a long strip of Propulsion Gel leading up to the end of the ramp.

04 If you were to run along the gel and off the end of the ramp at this time, however, you would simply end up falling into the bottomless bit. To avoid that unfortunate end, you will need to use a funnel to catch you as you fall. You will need the cube to keep the funnels active while you jump, so use the portals as before to enter the area behind the glass and retrieve the cube. Place the cube onto the button to activate the Excursion Funnel generator and then place a blue portal on the ceiling above it.


01

Walk over to the large chasm and place the orange portal on the back wall of the separated chamber at Position C [→☐ 01]. The funnel should now be extending between the two halves of the separated chamber and flowing in the direction of the exit. Walk back over to the start of the gel strip and then run along it so that you get launched off the ramp and end up safely in the funnel. Let the funnel carry you across the chasm, and then step out of it when you are over solid ground and go through the exit and into the elevator.

Chapter 08: The Itch

16

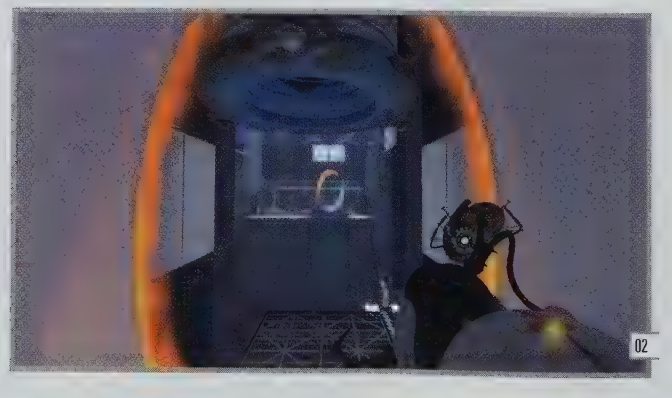
11/11

Wheatley Test Chamber 16

The aim of this test is to find a way of making it safely past the turrets and across the chasm to the exit. To accomplish this you will need to use the funnel as a delivery system for the Repulsion Gel and control the traveling direction with the button to get it into place. After dispersing the gel, you will again need to use the funnel in conjunction with portals to set up a fling to reach the exit.

07_066

01 Before even entering the chamber, Wheatley will have an "accident" while moving testing elements around outside of the entrance corridor, totally smashing a hole through the middle of it. Thankfully, he was moving containers of Conversion Gel so even though there is no real path, you can still make it to the chamber. Place a blue portal on the wall above the Test Chamber entrance, and then place the orange portal on the floor just in front of the elevator and drop down into it to reach the Test Chamber.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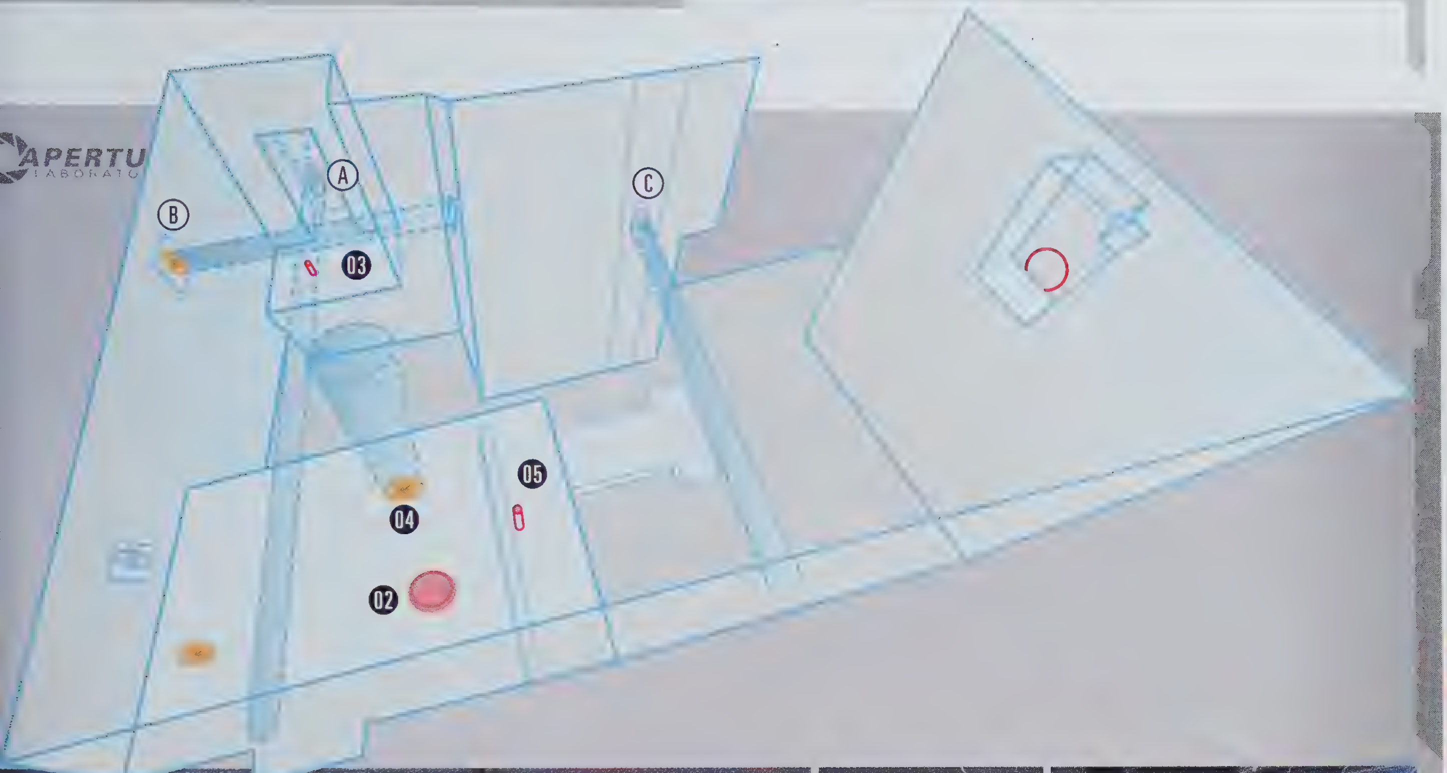
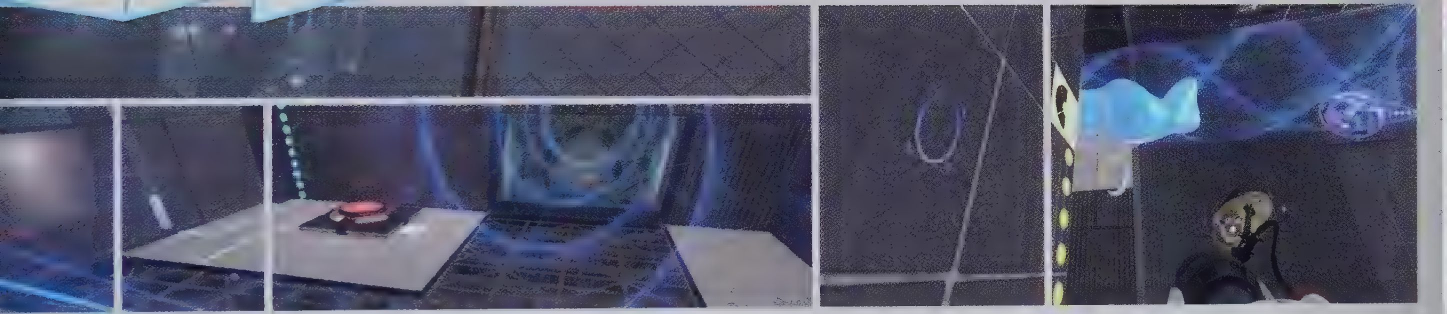
02 Be careful not to walk too far forward when you enter the Test Chamber, because the turrets will be able to shoot at you if you walk past the end of the glass. Taking care of the turrets should be your first priority in this test, and to do that, you will need the Repulsion Gel. Place a blue portal on the wall behind the gel pipe on the other side of the chasm at Position A and then place the orange portal on one of the portalable sections on the floor near the entrance and step through it. [→☐ 02]

03 After landing on the platform, reposition the orange portal onto the surface opposite the Excursion Funnel generator at Position B. The Excursion Funnel should now be extending underneath the gel pipe and across the chasm. You need to create a way of getting into the Excursion Funnel in its current position and to do that you will need to make use of the Repulsion Gel. The center of this platform is a mesh floor, so any gel will simply pass through it, the front edge, however, is solid and that is where you to need to place the gel.

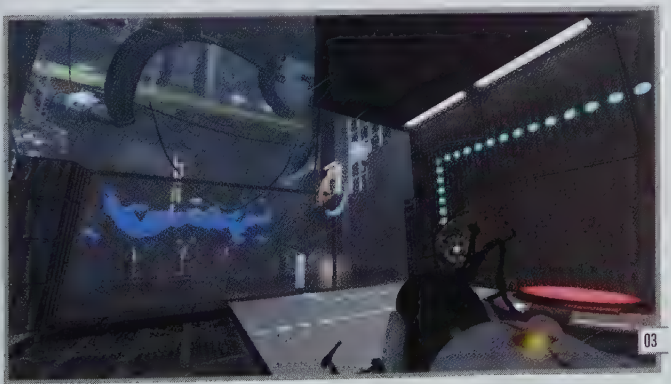
Press the switch to start the gel flowing and then watch it as it travels along the Excursion Funnel; as soon as it is over the solid part of the platform, move the blue portal onto a different surface to cut off the funnel. The gel should fall down and coat the solid area on the floor that you can use to jump up into the funnel. Now you





need to get the Repulsion Gel over to the turrets, so place the blue portal back at Position A and then hit the switch to start the gel flow. As soon as you hit the switch, jump up from the coated section of floor into the Excursion Funnel so that you are ahead of the gel flowing into the funnel. If you are too late jumping into the funnel you will bounce of the Repulsion Gel inside it, if this happens, cut off the funnel and try again.

04 As soon as you are over solid ground near the entrance, step out of the funnel and onto the button controlling the funnel polarity. Once the polarity has changed, the gel will start traveling back across the chasm and through the blue portal on the wall. Wait until most of the gel has moved out through the orange portal, and then quickly before the gel starts hitting the funnel generator, reposition the blue portal to Position C and step off the button.


03

Moving the blue portal to this position will extend the Excursion Funnel directly over the turrets, and stepping off the button will return the polarity back normal so that the gel also starts moving over the turrets. When the gel is directly above all three turrets, move the orange portal onto any other surface to cut off the funnel and drop the gel onto the turrets [→□ 03]. As soon as the gel touches the turrets, they will start to bounce around the area and be destroyed.

05 The gel you used to destroy the turrets also coated the ground beneath them and you will need to fling across to this area and then bounce off it to reach the exit. Walk around to the other side of the glass now that it is safe and press the switch to reveal the angled surface you need for the fling. Now you will need to use the Excursion Funnels once again to gain height before you can attempt the fling, so place the blue portal back at Position A.

Step onto one of the portalable sections of floor near the entrance and then place the orange portal beneath you so that you get carried upwards in the funnel. Once you are near the ceiling, reposition the blue portal onto the angled surface so that you cut off the funnel and drop down into the orange portal below. When you fling out of the blue portal you will bounce off the patch of Repulsion Gel and easily cross the chasm to the exit, and complete the chapter.

CHAPTER 09

THE PART WHERE...

17

Wheatley Test Chamber 17

01 Walk into Test Chamber 17 to be faced with a much simpler test than the previous few chambers. A Franken-Turret will get dropped out of a dispenser when you walk in and start bouncing straight up and down on a faith in the middle of a moat. The exit can be seen on the other side of the moat, along with the button to open it and straight in front of the entrance there is another Faith Plate. It looks like all you have to do is step onto the Faith Plate and catch the cube in mid-air to complete the test, but things are not what they seem.

As soon as you step onto the Faith Plate, however, Wheatley will spring the surprise that he has been alluding too earlier than planned. The trap Faith Plate will catapult you through a hole in the wall, onto another Faith Plate, which will launch you into an Excursion Funnel. After traveling along the funnel for a while, you will get launched out of it and land on a small platform that houses the deadliest part of Wheatley's trap. [→▢ 01]

02 Deadly spiked crushers surround this small platform, and Wheatley has every intention of using them on you. Luckily, like all good villains, he will proclaim how impossible it is for you to escape and explain his entire plan. By this Time, GLaDOS will point out a pipe dripping Conversion Gel just behind him and that you can use the gel to escape. Place a blue portal onto the angled surface that the gel is dripping onto and then place an orange portal onto the small portalable section of wall near a catwalk up high on the left.

One of the Conversion Gel drops should then drop down through the portals and hit the platform you are standing on; as soon as the platform has been coated in gel, reposition the blue portal onto it and drop through the portal and onto the catwalk. You need to drop through that blue portal very quickly because as soon as Wheatley sees you set up the portals to catch the Conversion Gel, he will tell you to stand still, and shortly after that, he will activate the crushers.

Aperture Information Service

You can actually set up the portals to escape the trap as soon as you see the Conversion Gel start to drip, so you do not have to listen to the whole conversation. As soon as you place the first portals, Wheatley will cut short what he was saying and attempt to spring the trap, meaning that you still have to drop through the portal on the platform as soon as possible.

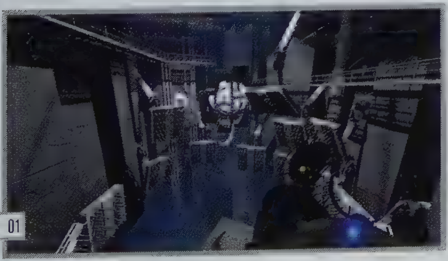
03 Although you escaped the main trap, Wheatley still has many more deadly surprises set up to try and prevent you from reaching him. Walk along the catwalk and through the door and then continue all the way along the next long catwalk until it ends. To the left of this area you can see a catwalk that you need to reach through the narrow gap between the Test Chambers, and the only way to reach it is to fling across the gap.

If you look up to the right of the catwalk, you will see some portalable wall panels; place the blue portal on the one that is in line with the gap between the Test Chambers [→▢ 02]. Now if you look over the edge of the broken catwalk you can see that there is a portalable surface directly below; place an orange portal onto this surface below and then drop down into it.

Aperture Information Service

When you start to walk away along the catwalk, Wheatley will call you back over to his failed trap. If you walk back towards it he will be caught off guard since he did not expect you to actually do it and since he doesn't have a trap prepared, he asks you to jump off the catwalk into the pit below. If you actually follow his advice, you will automatically unlock the Pit Boss Achievement/Trophy. Jumping into the pit will of course cause you to die, but the last auto save was very close by, so you won't have to travel far.

04 Walk along the catwalk after you land from the fling and start to approach the Franken-Turret. When you get close to the cube, however, Wheatley will use a large spiked crushing plate to smash through the wall, destroying both the cube, and a section of the catwalk. The only way to make it across the gap is to use portals, so place a blue portal high up on the left wall on the other side of the gap, and then walk back and place the orange portal on the left side of the archway [→▢ 03]. Step through the orange portal to drop down onto the other side of the catwalk and then go through the Emancipation Grill to the next area.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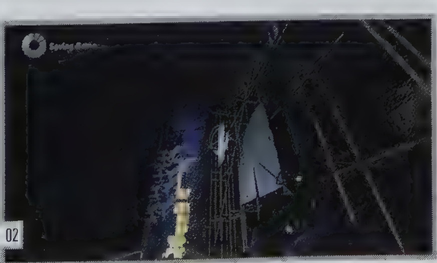
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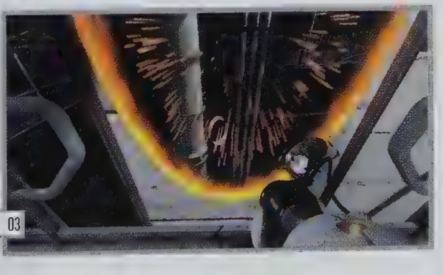
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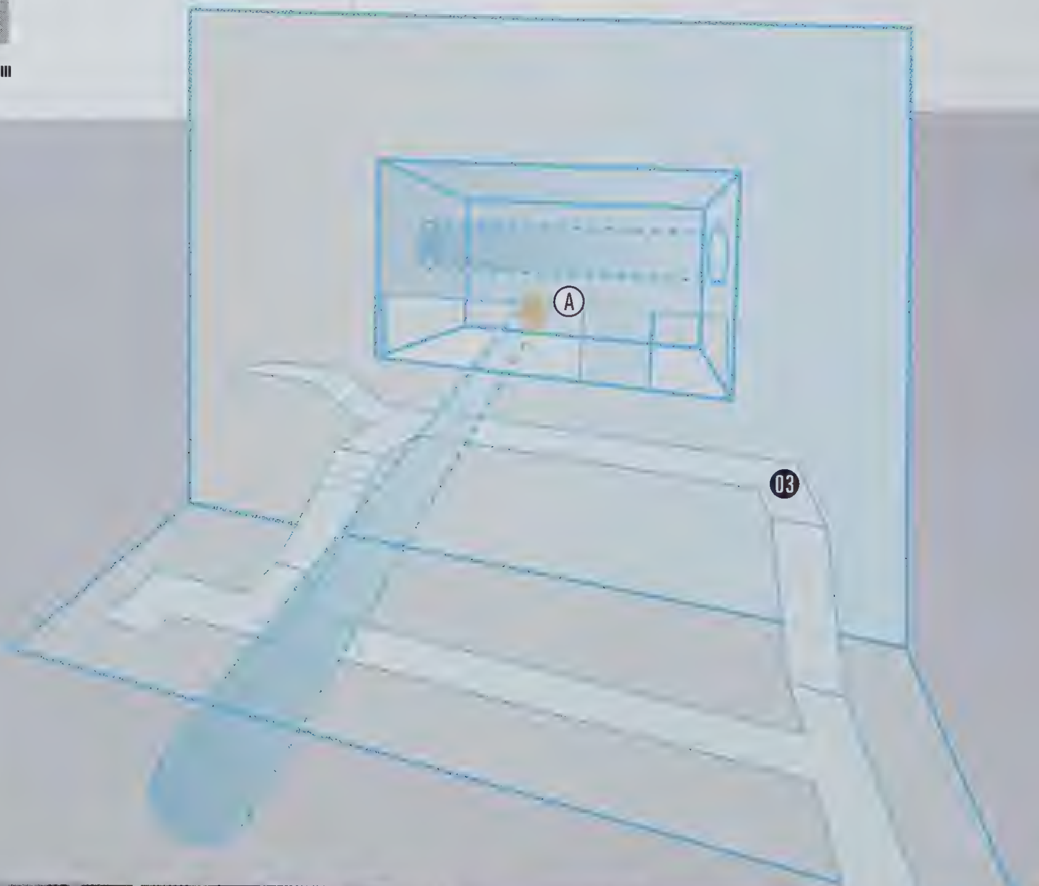
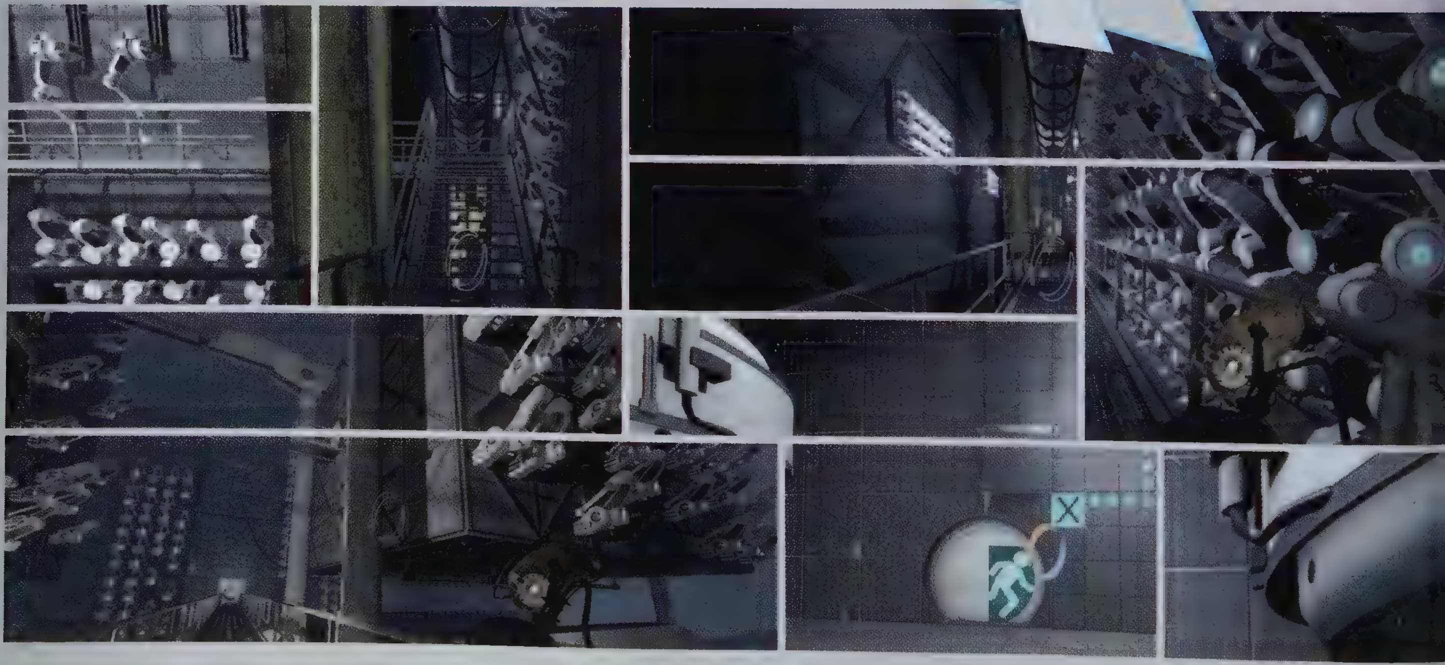
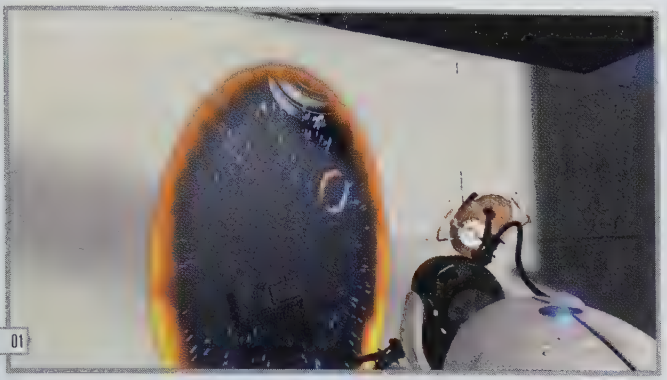
Wheatley's Gauntlet of Traps – A

07_068



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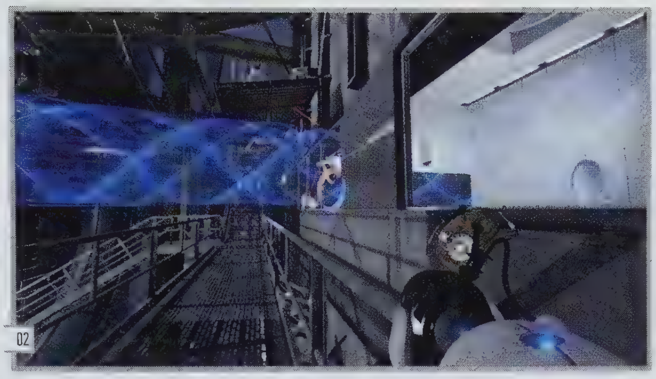
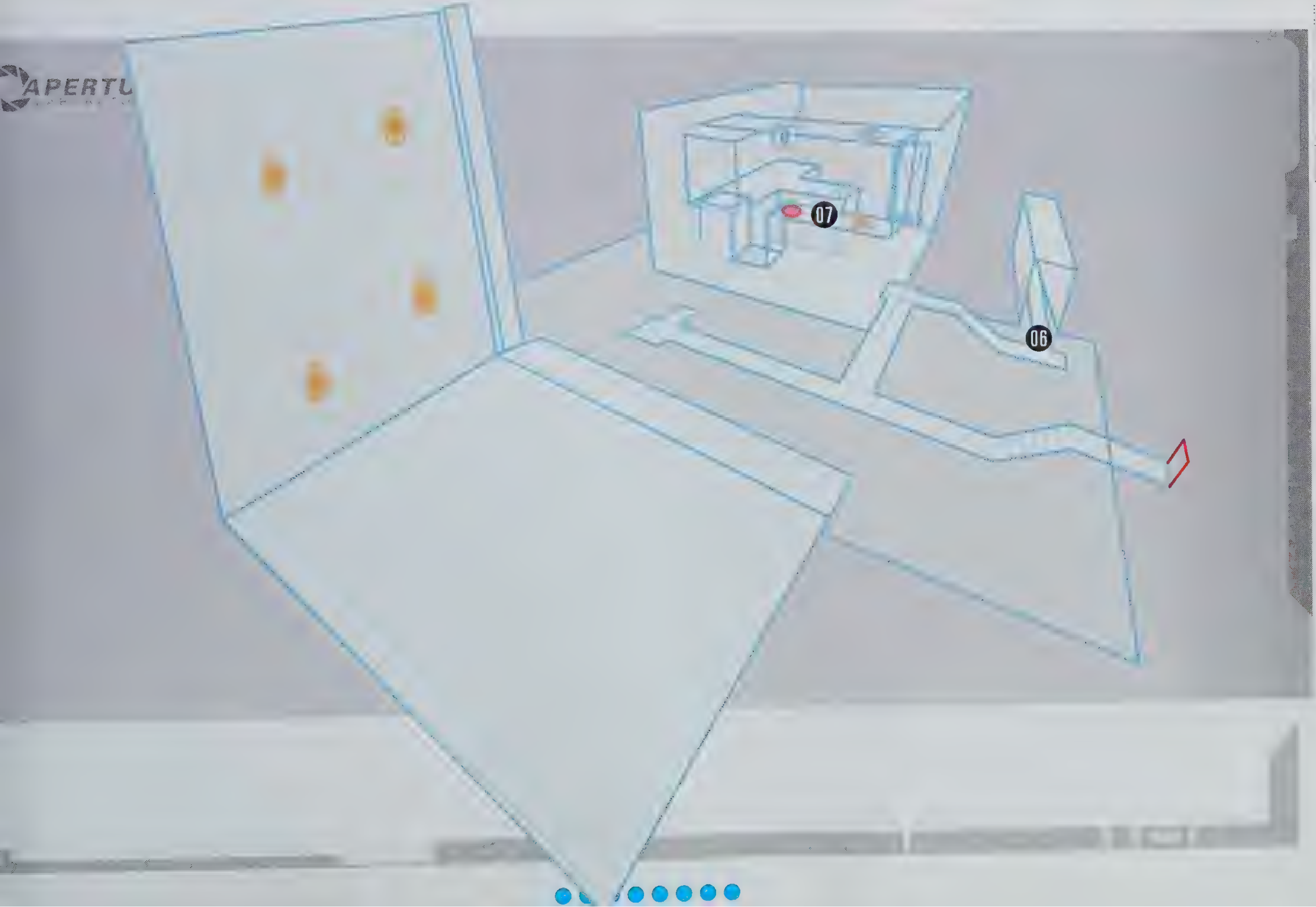

02

01 Walk through the door and along the catwalk until you come out into a large open area, at which time Wheatley will start moving a Test Chamber across the area, destroying the catwalk and blocking the path forward. When the Test Chamber comes to a stop, a panel on the bottom of it will fall off and allow you to see inside. Look through the mesh on the floor and place a blue portal on the ceiling of the Test Chamber; the side of the rail mechanism beneath the chamber is also portalable, so place an orange portal onto it and step through. [→☐ 01]

02 This Test Chamber is another one of Wheatley's traps and it consists of a large number of turrets getting dispensed around the chamber. Unfortunately, Wheatley seems to have used the defective turrets you made, so the trap is harmless. The door out of the chamber will open and close intermittently so wait for it to open and then step through. You will come out onto a broken section of catwalk and from there you will need to drop down to another catwalk below. After you drop down, make sure to move up the catwalk quickly and through the door because a short while after landing on it, the catwalk will collapse slightly and if you are near the broken end it is possible to fall off.

03 Shortly after you start walking along this next catwalk, Wheatley will announce that he has another trap set up, and this time it is using fully functioning turrets. A series of panels will open up on the side of one of the Test Chambers next to the catwalk and inside it is a small group of turrets. Walk up the stairs so that you can see into the partially opened Test Chamber and you will also notice that there is an Excursion Funnel being generated inside. The Excursion Funnel is the perfect tool for getting rid of the turrets and also happens to be the exact thing needed to continue the escape.

Place a blue portal onto the wall inside the Test Chamber at the point the Excursion beam is hitting, and then place the orange portal on the back wall at Position A. The Excursion Funnel should now extend out of the Test Chamber and through an opening in the wall on the other side, picking up the turrets and taking them out of commission along the way. [→☐ 02]



Walk beneath the Excursion Funnel and then jump up into it once the area is clear of the turrets. Wheatley is determined not to be outdone, so as you begin to reach the wall at the end of the Excursion Funnel, he will open up a section of the wall to reveal a set of spinning blades. Even the slightest touch of these blades would result in death, so as soon as you are over the ledge in front of them, step out of the funnel and drop down onto it.

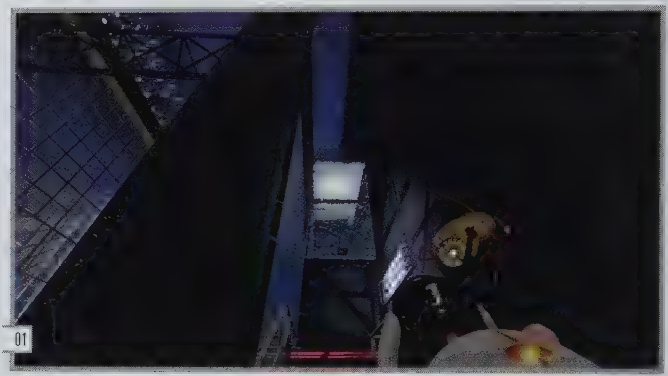
04 Step through the Emancipation Grill into the next room to find another Excursion Funnel being generated from the ceiling. The way forward is along a catwalk that you can see in the distance through the doorway opposite the entrance. The only way to reach the catwalk is to use the Excursion Funnel, so place a blue portal on the floor that it is hitting, and then place the orange portal on the wall opposite the doorway. Step into the funnel once it is extending out to the catwalk to continue the escape, only to have Wheatley spring another trap.

05 As soon as you pass through the door, a large Repulsion Gel pipe will come crashing down and take out the catwalk ahead of you. It does, however, coat the broken end of the catwalk with Repulsion Gel and you can use that to jump across the gap.

06 Walk along the catwalk until you come out into a large open room but do not walk too far into it because there is a large number of turrets on the other side that can very easily kill you. Look up to the right as soon as you enter the room to see a portalable ceiling behind some shattered glass and place a blue portal onto it [→☐ 01]. Move back along the catwalk slightly and place an orange portal on the wall of the opening you walked through and step into it to drop down onto a ledge behind the glass.

07 Straight in front of you on this ledge, there is a button on the floor that is used to control the flow of Repulsion Gel from a dispenser in an alcove opposite the ledge. There is also an Aerial Faith Plate on another ledge that will catapult you over to a catwalk just in front of the turrets that you need to reach. Stand on the button to start the gel flowing, and then place a blue portal beneath the dispenser. If you turn back around to face the area with the turrets, you will notice that the glass stops just short of the end of the ledge.

This means that you are able to place portals on the large wall to the side of the turrets and if you place the orange portal onto that wall, Repulsion Gel will come flying out. Keep repositioning the orange portal so that drops of gel fly out and hit all of the turrets to make the area safe. Once all of the turrets have been deactivated, reposition the blue portal onto the angled surface near the Faith Plate, and the orange portal onto the floor of the ledge near the button so that you can drop through it. Step onto the Faith Plate so that it can catapult you over to the now safe catwalk, and then follow that along into the door to reach the next area.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Chapter 09: The Part Where...

P2

03/04

Wheatley's Gauntlet of Traps – B

07_069

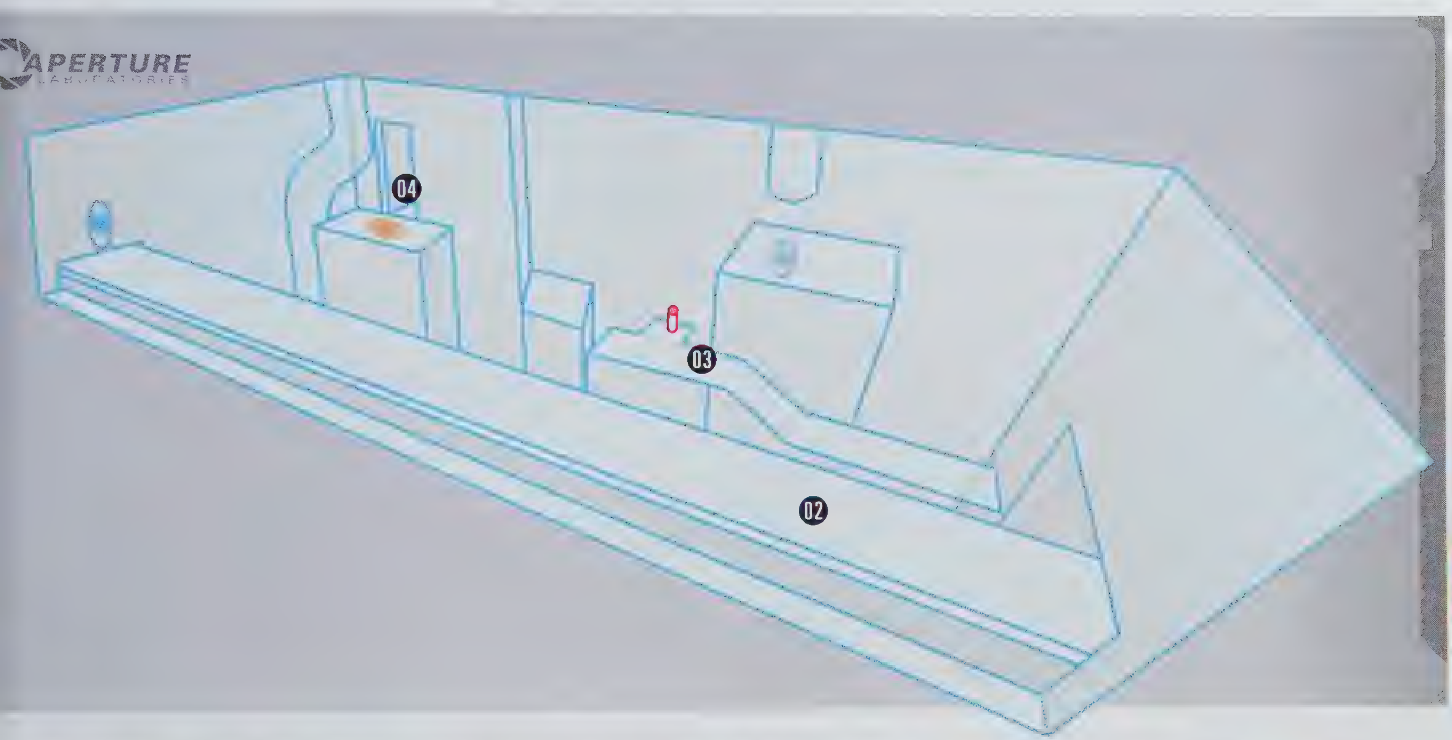
01 Walk along the corridor after you pass through the door and go through the Emancipation Grill at the end into the small room. On the left of the room, is a tube that is carrying Conversion Gel, and on the right, there is a switch near a smashed window. On the other side of the window, there is another tube, and this one is carrying extremely powerful bombs. Beneath the bomb tube there is a doorway that you need to reach, and the only way to get there is by using the Conversion Gel.

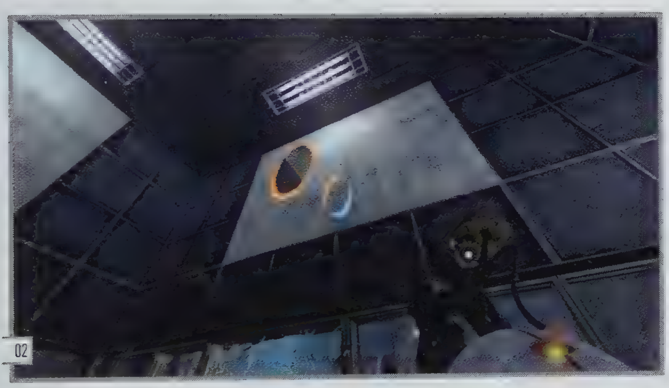
If you press the switch, the tube delivering the bombs will swivel and face downwards for a short period. While it is facing down, place a blue portal on the ground where the bombs are landing, and then place the orange portal in the middle of the portalable section of wall directly above the switch [→☐ 02]. Doing this will cause the bombs to come flying out of the orange portal and hit the tube carrying the Conversion Gel, causing it to coat the floor of the room. Now you can simply reposition the orange portal onto the floor and drop through it to come out in front of the door you needed to reach. Go through the door and across the office and then go through the next door on the other side.

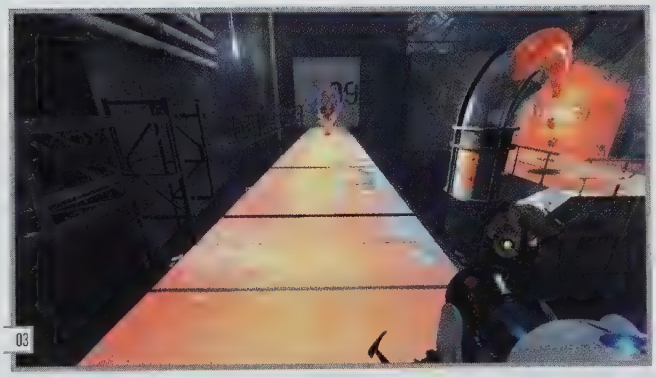
02 You start this next area on a catwalk overlooking a large conveyor belt and two delivery tubes. The tube to the far left of the room is carrying Propulsion Gel, and the one running above the catwalk you are on is carrying bombs. The path forward lies along a corridor near the Propulsion Gel pipe, so start by walking along the catwalk and dropping down onto the conveyor belt.

If you start walking along the catwalk Wheatley will power it up and you will no longer be able to make any forward progress, in fact it will start moving you backwards. The safety gate nearby will also open and a spiked crushing plate at the back of the conveyor belt will spring into life. To avoid certain death you need to get off the conveyor belt quickly by jumping onto the catwalk next to it.

03 To advance along the conveyor belt you will need to make use of the Propulsion







Gel traveling along the tube, but first you will need to break it open. The switch on this catwalk will activate a bomb dispenser above a platform directly opposite the switch, and this is exactly what you need to break the gel tube. Place a blue portal on the floor beneath the bomb dispenser and then place the orange portal on the floor below the Propulsion Gel tube.

Now when you press the switch, the bomb will drop through the portals and blow a hole in the pipe, creating a constant flow of Propulsion Gel onto the floor. Reposition the blue portal so that it is near the bottom of the surface with the number 09 on it, at the other end of the conveyor belt. The conveyor belt will now get constantly coated with Propulsion Gel and you should walk down onto it [→☐ 03]. After a short while of running forward on the conveyor belt, you will build up enough momentum to run all the way up it and through the blue portal at the other end to land on the floor near the Propulsion Gel pipe.

04 Walk along the short corridor into the next room to find the wall ahead crumbling in front of you, this reveals an Excursion Funnel extending off into the distance. Just below the end of the Excursion Funnel there is a catwalk, and that is your next destination. In order to get over there, however, you will need to use the Propulsion Gel to gain enough momentum to fling up into the Excursion Funnel. In the middle of the room there is a narrow corridor leading back towards the conveyor belt area; reposition the blue portal onto the wall at the end.

The Propulsion Gel should now come flowing through the portal and coat the entire floor of the corridor. Once the corridor has been coated, reposition the orange portal onto the floor beneath the Excursion Funnel, and then run along the strip of Propulsion Gel into the blue portal The momentum from the Propulsion Gel will allow you to fling out of the orange portal and into the Excursion Funnel.

While you are moving in the funnel, you will start seeing the Test Chambers on either side start to crumble because of how out of control the reactor is. When you reach the end of the funnel, drop down onto the catwalk below and then go through the door at the end into the tall shaft. Look up through the mesh and place a blue portal onto any of the walls on the other side and then place the orange portal on any of the walls nearby and step through it into the next area.

P3

Wheatley's Lair

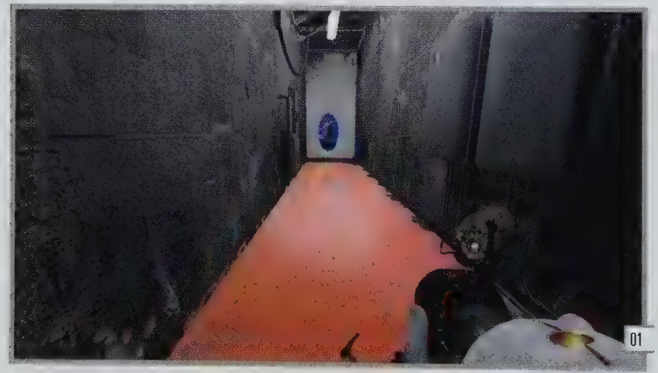
07_070

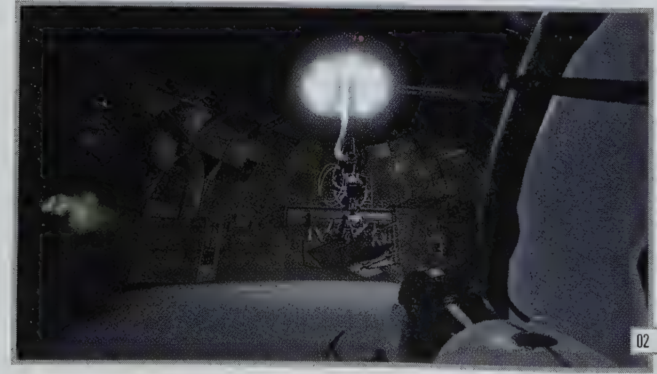
04/04

01 The path to Wheatley's lair lies at the top of this tall shaft, so look right up to the top to find a portalable section on the ceiling and place a blue portal onto it. Turn around, place an orange portal onto the floor of the alcove to the back of the shaft and then drop down into it. Walk past the core storage area and GLaDOS will start to outline the plan to take down Wheatley. Continue along the catwalk on the other side of the room and step into the narrow shaft at the end. Once you are inside, press the Use button to place GLaDOS onto the core receptacle and the platform will rise up into Wheatley's lair.

02 Wheatley has been preparing for this final showdown for some time now and has taken numerous steps to ensure his victory. As he says in his plan, he knows how you defeated GLaDOS the first time, so things will not be so simple this time around. To start with, there are no portalable surfaces at all in the lair, but there is a suspicious tube carrying Conversion Gel on the side.

Wheatley's main threat, however, comes in the form of his bomb launcher. Shortly before firing the bombs, Wheatley will lock onto your position, so the bombs will always land exactly where you were standing at the time the first bomb is launched. Six bombs in total are fired in each volley, with a short pause between each one; if you get hit with three bombs in quick succession, however, it will do enough damage to kill you because you health will not regenerate fast enough to compensate. Shortly before the first bomb is fired, you will be able to hear the launcher power up; this is your cue to move. Moving to the side is generally better for evading the bombs, so always make sure there is nothing blocking your way.


01


02

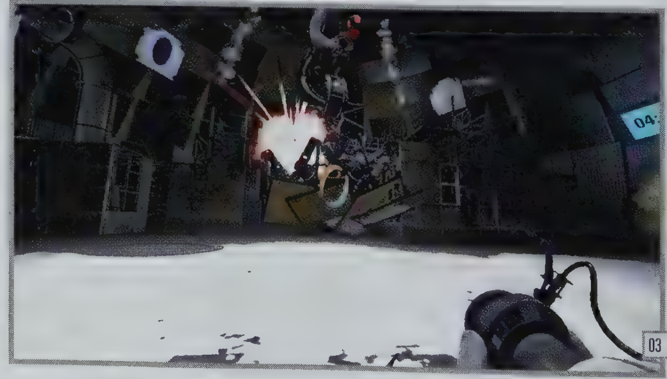
As soon as Wheatley fires the first bomb, a five minute countdown clock will appear above the two dispensers of Wheatley's secondary means of killing you: deadly Neurotoxin. If you have not at least partially corrupted Wheatley by the time the five minutes are up, the Neurotoxin will reach a lethal dosage and Wheatley will have won. Corrupting his core, however, will cause the Neurotoxin generator to shut down.

The first step to defeating Wheatley is to create some surfaces that you can portal off, and that means destroying the tube containing the Conversion Gel. Stand directly underneath the tube so that when Wheatley fires his bombs, they hit the tube and blow a hole it [→☐ 01]. Conversion Gel will then get sprayed all over the lair, coating the floor and numerous surfaces higher up around the lair.

03 The only means you have of doing actual damage to Wheatley is, to again, use his own bombs against him, and this involves finding a way around his protective bomb shields. Stand anywhere near the outer edge of the coated floor until Wheatley starts firing bombs; once the first one is in the air, quickly move to the side and place a blue portal on the floor where the bombs will strike. Standing near the edge means you are as far away from Wheatley as possible, which gives you more time to dodge the bombs and place portals.

Wheatley's bomb shield is currently configured to protect him from any bombs coming from below, so quickly place an orange portal onto one of the surfaces high up on the side of the lair [→☐ 02]. If you placed both portals in time, one of the bombs should come flying out and hit Wheatley, stunning him for just long enough for GLaDOS to bring in one of the cores. To reach the core you will need to get onto the catwalks behind Wheatley so reposition the orange portal onto the surface above the catwalk and then drop through the blue portal on the floor. Start walking over to the suspended core and pick it up once you are close enough. Doing this, however, will cause the catwalk you are on to collapse and break open a pipe containing Repulsion Gel below it.

Walk over towards Wheatley and look for the flashing red core receptacle that is exposed half way up his body; jump off the Repulsion Gel on the floor and place the core onto the receptacle [→☐ 03]. To fully corrupt Wheatley you will need to place two more cores onto him within the time limit, because even though the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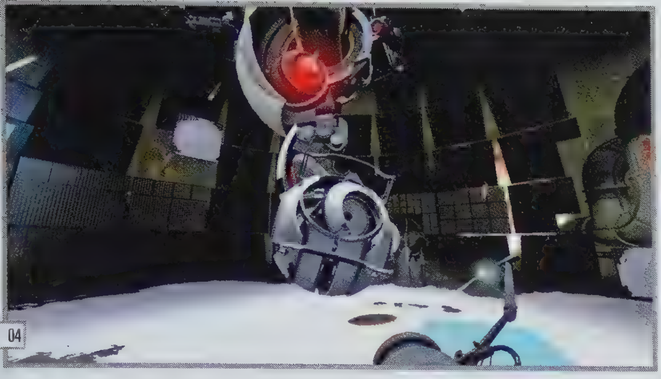
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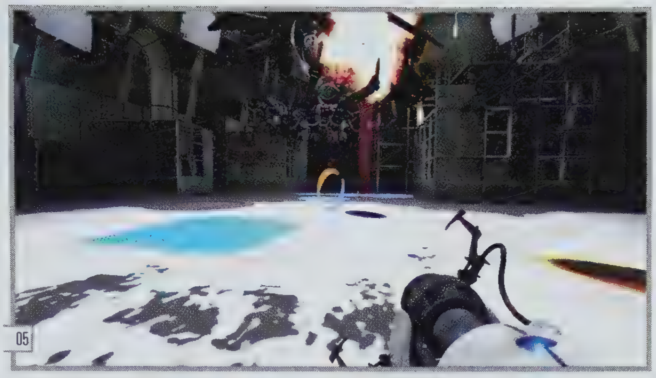

05

Neurotoxin generators have shut down, the facility reactor is still about to explode. Once he has been fully corrupted, you will be able to go through the core exchange procedure again and place GLaDOS in charge so that she can avert the meltdown.

04 Wait for Wheatley to power back up after placing the core on him and then stand at the edge of the Conversion Gel again and wait for the bombs. The bomb shield protecting Wheatley has been reconfigured after the last attack, and it now protects him from any bombs dropped from above. Place a blue portal beneath Wheatley, and then once you have dodged the bombs, place an orange portal on the ground they are striking to launch a bomb at Wheatley from below, stunning him again. [→☐ 04].

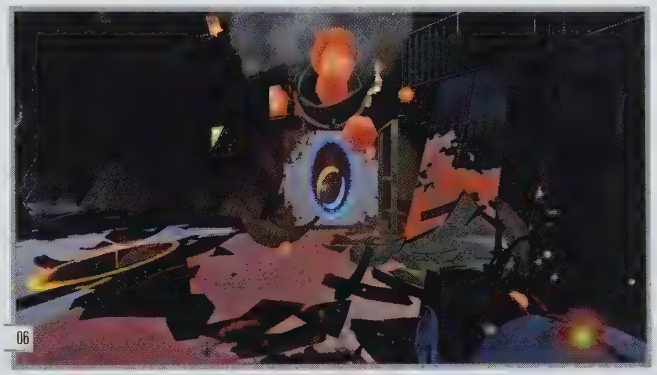
GLaDOS will now bring in the second core in the same place as the first one, so you will need to portal back up to the catwalks as before. Since the catwalk was destroyed the last time you were up here, retrieving this core will not be quite so simple. The core is swaying back and forth over the destroyed section of catwalk and directly below it is the ground that has been coated by Repulsion Gel.

You will need to time a jump off the catwalk so that you can bounce off the gel and catch the core as it passes by. If you miss the core on the first bounce, you can keep bouncing on the spot and try again until you have it, or bounce straight across to the other side of the catwalk where you are able to catch it while standing near the edge. Once the core is in your possession you will again need to place it onto one of the core receptacles, and this time it is on the other side of Wheatley's body. Drop down and use the small patch of Repulsion Gel in the middle of the floor to jump up and place the core onto Wheatley.

05 As soon as you place the second core on Wheatley, the reactor meltdown timer will malfunction, which will cause the facility to speed up the process. You will now only have two minutes in which to place the final core onto Wheatley to fully corrupt him and start the exchange procedure. After powering up again, Wheatley will reconfigure the bomb shields again so that they are now protecting multiple areas at once.

The only opening in the shields is above and directly behind Wheatley, so you should place a blue portal on one of the high surfaces. Now walk around to the other side of the lair so that the surface is behind him and wait for the bombs to come. Placing the blue portal up high first is much easier before he starts firing the bombs, since it will save you having to walk around him to get a clear view of the surface afterwards. Once the bombs start coming, move out of the way as usual and place an orange portal at the point they hit the ground to once again fling a bomb and stun Wheatley.

The final core will enter the lair along a management rail near the Conversion Gel pipe and shortly after it arrives, a small explosion will trigger and rupture a pipe that was carrying Propulsion Gel, spraying it on the floor. There is no Repulsion Gel in the area so you will need to find another way of getting high enough to grab to the core and the only other option is the Propulsion Gel.


06

A long section of the floor in front of the ruptured pipe was coated in the Repulsion Gel and at the end of it is a portalable surface. Place a blue portal onto this surface and then place an orange portal onto the Conversion Gel coated floor beneath the core [→☐ 05]. Run along the strip of Propulsion Gel so that you get flung out of the orange portal and can grab the final core while you are in mid-air. The final core receptacle is on the front of Wheatley's body and you can use the same small patch of Repulsion Gel near him to reach it.

06 Shortly after placing the final core onto Wheatley, the core replacement procedure will start, and like last time, it will result in a stalemate again. Unfortunately, a fire has broken out in the stalemate resolution annex and you will be unable to enter until the automated fire extinguishers come online to put it out. The extinguishers will also wash away most of the Conversion Gel, leaving only a small patch of it directly beneath Wheatley.

Once the fire has been extinguished, a panel on the wall will open up to reveal the stalemate resolution annex but it is still being sealed off by a mesh wall. Look through the mesh and place a blue portal onto the ceiling in the annex, and then walk over to Wheatley and place an orange portal on the patch of Conversion Gel beneath him and drop through it. The path to the resolution button is now clear, but when you press it you will discover that Wheatley has set up another trap and an explosive will go off. [→☐ 06]

The force of the blast was not enough to kill you, but it will send you flying back out of the annex into the main lair. While you are coming to your senses, Wheatley will begin to boast about still being in control, and since there is no more resolution button he is confident in his victory. While Wheatley is gloating, explosions will start to go off around the lair as the reactor begins to meltdown and a small panel on the roof of the lair will fall off and reveal a full moon outside. Now as everyone knows, moon rocks make excellent portal conductors, so fire a portal straight onto the surface of the moon, it doesn't matter which, and then sit back and watch the results… you monster.

HUGS
AREA OF
UNDER
PERFORM
ANCE
AND THEREFORE CONCERN

Chapter 03

COOPERATIVE TESTING INITIATIVE

Welcome to Cooperative Testing! Instead of simply showing the full solution to each chamber right from the start, we designed this chapter so that it avoids unnecessary spoilers at all costs. Turn the page and carefully read the introduction to this chapter before you start looking for the full solution further down the road. Solving a puzzle by yourself grants the most satisfaction, so please make sure you have tried all resources provided in this guide (and in your brain). Admittedly, some chambers require thinking around multiple corners, so whenever the feel of frustration sneaks in, relieve yourself right here.

0

COOPERATIVE TESTING OVERVIEW

Skip ahead

Large chunks of text on this spread are copied/pasted from the single player chapter intro (simply because we couldn't come up with even better text). So, if you have read the stuff about the walkthrough elements, skip ahead because you'll know the drill.

Spoiler Levels

This guide features a warning system that indicates the level of spoilers each section may contain. In this chapter, each section reveals a little bit more of the solution. This overview page reveals the number of chambers the game possesses, which is why we assigned the spoiler level 1 to it. Every following section, from textual to visual hints to the complete solution, has an increased level of spoiler potential. The actual spoiler level is identified by the blue dots at the bottom of each right-hand side page – every 2 dots is one level – and the blue lines at the right-hand side register.

Textual hints

With a spoiler level of just 2, this section pushes you gently into the right direction of the solution. It gives you just a little hint or tip that should be seen as an inspiration for further thinking. After reading this small hint, it will still be you that solves the puzzle, so come here if you are want to be given a slight push in the right direction.

Visual hints

Similar to the textual hints above, this section is designed to give you some new ideas, or a different way of looking at a puzzle. Since in many cases screenshots reveal more than just text, simply because they can show where to shoot a portal or showcase an important element of the solution, this section gets spoiler level 3. Still, it doesn't provide you with the complete solution – it's up to you to get the final idea.

Step-by-step

This section is where you'll find the complete and detailed walkthrough for the Single Player game, and as such has the highest spoiler level: 4. This section actually has several purposes. Firstly, if you are totally stuck and have read the textual and seen the visual hints but still have no idea what to do, you can get the full solution to any area. Sometimes, all you need is to know where to shoot a single portal and you can figure the rest out yourself. At times when this approach fails, reading the entire solution will ensure you understand exactly what needs to be done. Secondly, if you have completed a test chamber already and simply want to compare your approach to ours, be our guest. And finally, for several test chambers we provide you with alternate solutions that require more skill, but save you a little time.

Additional Information

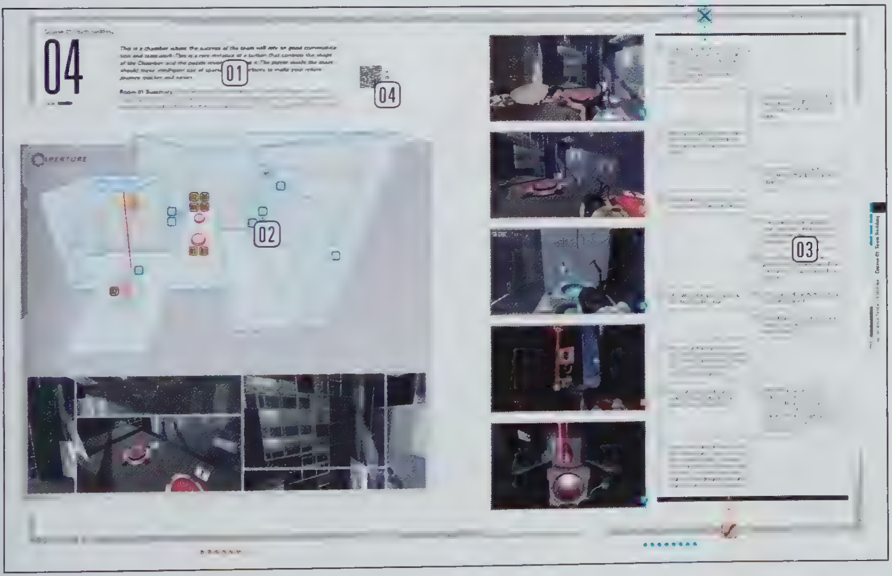
The "Additional Information" column in the table here provides an at-a-glance guide to things you could miss during a playthrough, since unlocking Achievements/Trophies can often only be done in very specific chambers. Advanced solutuons to chambers are also shown here. We have deliberately made this column harder to read in case you don't want to see where an Achievement/Trophy can be unlocked, for example. While this is a potential spoiler, we think the benefit of having this easy-to-miss information in one sleek overview table is worth the risk.

ID	Course / Chamber	Hints reference			Features
	Course 01: Team Building	**Textual**	**Visual**	**Step-by-step**	
01	**Test Chamber 01**	158	161	165	
02	**Test Chamber 02**	158	161	166	
03	**Test Chamber 03**	158	161	168	
04	**Test Chamber 04**	158	161	170	
05	**Test Chamber 05**	158	161	172	
06	**Test Chamber 06**	158	161	174	
	Course 02: Mass and Velocity	**Textual**	**Visual**	**Step-by-step**	
01	**Test Chamber 01**	158	161	177	
02	**Test Chamber 02**	158	161	180	
03	**Test Chamber 03**	158	161	182	
04	**Test Chamber 04**	158	161	185	
05	**Test Chamber 05**	158	161	186	
06	**Test Chamber 06**	158	161	190	R1: AS, R2: "Iron Grip"
07	**Test Chamber 07**	158	162	194	
08	**Test Chamber 08**	158	162	196	
	Course 03: Hard Light Surfaces	**Textual**	**Visual**	**Step-by-step**	
01	**Test Chamber 01**	158	162	201	
02	**Test Chamber 02**	158	162	204	
03	**Test Chamber 03**	159	162	206	R2: AS, "Portal Conservation Society"
04	**Test Chamber 04**	159	162	208	R2: AS
05	**Test Chamber 05**	159	162	214	R2: AS
06	**Test Chamber 06**	159	162	218	"Can't Touch This"
07	**Test Chamber 07**	159	162	220	
08	**Test Chamber 08**	159	162	220	

ID	Course / Chamber	Hints reference			Features
	Course 04: Excursion Funnels	**Textual**	**Visual**	**Step-by-step**	
01	**Test Chamber 01**	159	162	227	
02	**Test Chamber 02**	159	162	228	
03	**Test Chamber 03**	159	162	230	AS
04	**Test Chamber 04**	159	163	233	
05	**Test Chamber 05**	159	163	235	
06	**Test Chamber 06**	159	163	236	
07	**Test Chamber 07**	159	163	238	
08	**Test Chamber 08**	159	163	240	
09	**Test Chamber 09**	159	163	243	R3: "Party of Three"
	Course 05: Mobility Gels	**Textual**	**Visual**	**Step-by-step**	
01	**Test Chamber 01**	159	163	249	
02	**Test Chamber 02**	159	163	250	AS
03	**Test Chamber 03**	159	163	254	R2: AS
04	**Test Chamber 04**	159	163	258	
05	**Test Chamber 05**	159	163	262	
06	**Test Chamber 06**	159	163	266	
07	**Test Chamber 07**	159	163	268	
08	**Test Chamber 08**	159	163	270	

R1 = Room 1
"Achievement/Trophy"
AS = Alternate Solution

Elements of the Step-by-Step Walkthrough



01 Chamber Overviews & Test Summaries

At the start of every test, you will encounter a brief Test Summary. This text is designed to give you a general insight to the goal of the test, and then a quick overview of how to solve it. By doing this we can point you in the right direction so that you can attempt the test on your own, and then if you need it, you can delve further into the full text.

02 Navigational Directories (aka Maps)

A Navigational Directory (map) can be found at the start of nearly every area of the game you come to while following this chapter, and these are an excellent source of information. On these maps, you will find the locations of many of the testing elements and other obstacles that you will come across. To better guide you through these areas, each step (for both Orange and Blue) has a number that corresponds to the same number on the map, so you will always know where you are.

03 Co-op Timeline

A unique feature of the Step-by-step Co-op walkthrough is the timeline of events. Since the strategies rely on two players performing actions in certain times, we've shown the steps as a timeline of the order they should be carried out. Player 1 (Blue) and Player 2 (Orange) each have their own separate steps, which usually take place one after another. Sometimes Blue and Orange will have to perform task at exactly the same time, and these steps will be shown simultaneously in the timeline. At times when simultaneous steps are also numbered the same, they'll be combined into a single step (coloured black).

04 Movie Codes

While the "Movie Code" feature doesn't possess its own spoiler level, it would probably be rated 10 out of 4. Naturally, we recommend not to watch any of these videos until you have solved the puzzle your own. If you can't follow the solution provided in the Step-by-step walkthrough or have trouble pulling off the actions required, then refer to our strategy videos. While these videos have been recorded by our world class players, we're sure that someone will find faster ways of getting through a chamber or area. New and faster strategies are found today for Portal 1, three years after the game's release. Still, our videos might give you a good starting point for shaving off seconds in your own runs. Check out the intro spread of this book to see how you can access the movies.

PLEASE NOTE

Throughout the course of this guide, we will use specific colors when describing which portals to place. This is primarily to make it easier to keep track of which portals should be where while you are reading. During your own game-play, you should feel free to use the ones you are most comfortable using.

PRELIMINARY TEXTUAL ASSISTANCE

Like the Solo Textual Assistance section, this is designed to help set you on the right path to solving each of the puzzles in the Cooperative Testing Initiative. These basic hints will essentially provide clues as to a possible solution. Remember to discuss all possibilities with your partner, and try to figure out the solution based on these hints. For further help, check out the visual hints section later on.

Course 01: Team Building

01

Hint 1: A button for each door and a player on each side will lead to the answer.

02

Hint 1: A time operated door means you'll need some help getting through it.

Hint 2: Remember, your partner can use your portals too.

Hint 3: Take your time to look around the second room and experiment with the switches.

Hint 4: If you place your portals effectively, you can almost be in two places at once.

03

Hint 1: Remember, now you have four portals to use to get things where you need them to go.

Hint 2: Not ALL surfaces block the Thermal Beam.

Hint 3: Chances are that most portalable surfaces are placed where they are for a good reason; see what they are adjacent or opposite to.

04

Hint 1: Remember: Cooperation is the key. Experiment with the buttons and you'll soon see the answer.

Hint 2: If you know where you need to go, the next step is seeing how to get there. A portalable surface is usually a clue.

05

Hint 1: Just because there's one beam, doesn't mean it needs to get sent to only one receptacle.

Hint 2: Portals are stationary; beam operated platforms are not. Place your portals carefully.

Hint 3: Just because one of you has made it to the exit, doesn't mean your work is done.

06

Hint 1: Portalable surfaces are few and far between, but be assured they ARE there.

Hint 2: Portals are much faster than running from place to place.

Course 02: Mass and Velocity

01

Hint 1: If your partner can see something you can't see, take advantage of that fact.

Hint 2: You don't need to pass through your portals to do a fling.

Hint 3: The first order of business should always be to see what it takes to get to or open the exit.

Hint 4: Think about portalable surface placement: Why is it there?

02

Hint 1: An Emancipation Grill will only fizzle your portals.

Hint 2: Sometimes the fling is obvious, but you'll need to be creative to generate the momentum.

Hint 3: If you did it once, you can do it again... as long as you can still see the same surfaces.

03

Hint 1: All it takes is the re-placement of a single portal to redirect someone's momentum anywhere.

Hint 2: Remember the most basic of cooperation techniques that you can think of.

04

Hint 1: If the solution is time based, remember the biggest advantage of using portals: they allow you to be in almost two places at once.

Hint 2: If you can keep the portal flow going, you can maintain your momentum indefinitely.

Hint 3: You can always place new portals when you or your partner are in the air.

05

Hint 1: A Faith Plate is a great way to generate momentum.

Hint 2: Remember, all it takes is changing the location of your exit portal, and you can redirect your momentum to where you (or your partner) need to go.

Hint 3: If your portal configuration works to get one player where they need to go, it'll work for the other player too.

Hint 4: Think about where a fling will send you if you place your exit portal on different surfaces.

06

Hint 1: Remember, you now have access to four portals that can be used for any purpose.

Hint 2: Consider the layout of the room, where the exit is, and the angle that portalable surfaces are slanted at.

Hint 3: See what results placing portals on the few available surfaces here will give you.

Hint 4: It's worth seeing where each Faith Plate will lead you.

Hint 5: Just because an object is in the air, doesn't mean you can't interact with it.

07

Hint 1: The Countdown Timer can be very helpful for coordinating simultaneous actions.

Hint 2: Gaining height is usually an excellent way to generate the momentum needed for a fling.

Hint 3: Think about the layout of the puzzle elements; why is a portalable surface opposite the Faith Plate?

Hint 4: Using something to solve one puzzle doesn't make it redundant; maybe you can use it again further on.

Hint 5: Remember that using portals is faster than walking.

08

Hint 1: The area behind the large fan isn't just for show.

Hint 2: Look hard for a way to generate momentum for the multiple flings you will need to initiate.

Hint 3: Every angled surface in this chamber is there for a reason.

Hint 4: Sometimes, just having the redirection cube isn't enough; it takes a fine touch.

Hint 5: Distance is no obstacle; your beam can be redirected and sent through anything to get where it needs to go.

Course 03: Hard Light Surfaces

01

Hint 1: Light can travel your through portals just like everything else.

Hint 2: All it takes is the firing of a new portal to redirect anything.

Hint 3: Remember, all it takes is the placement of a portal to instantly generate a bridge anywhere... even mid-flight.

Hint 4: Even if your primary purpose for firing a portal is to generate a bridge, remember that the portals can still be used for transport.

Hint 5: A bridge isn't just for traveling on, but can be used as a makeshift wall.

02

Hint 1: Sometimes, it's worth extending a bridge just so you can get a better view of the rest of the room.

Hint 2: You can overwrite your partner's portal with your own.

Hint 3: When extending a bridge, you don't have to retrieve it with your first portal.

03

Hint 1: Consider how to retrieve the falling Storage Cube.

Hint 2: Using your own and your partners' portals, you can have up to three bridges available for use, including the initial bridge.

Hint 3: You can completely change the orientation of a bridge based on whether you fire it on a wall or ceiling.

04

Hint 1: Remember that both of you can step on a Faith Plate and be launched at the same time if needed.

Hint 2: Portals can be fired through some supposedly solid surfaces.

Hint 3: Keep track of who has the portal 'grabbing' the light bridge!

Hint 4: That portalable surface down in the goo looks like it can be used to set up a fling somewhere.

05

Hint 1: Don't have anything to land on after a fling? There's a way to remedy that with the tools available.

Hint 2: Take advantage of your partner's hard work by simply travelling through his portals.

Hint 3: Emancipation Grills: The bane of test subjects everywhere. Consider who has to perform the fling every time you set one up.

06

Hint 1: What's the only thing stopping you from getting slaughtered by the turrets?

Hint 2: Make your portals multi-purpose.

Hint 3: When there's two Light Bridges available for retrieval, consider what they are needed for.

Hint 4: One of you is going to have to live dangerously and entrust your life to your partner for a brief second.

07

Hint 1: Protect your buddy any way you can, as he ventures out into the danger zone.

Hint 2: Consider the curious placement of the angled surface next to the turret...

Hint 3: What can you use flying projectiles for?

Hint 4: Pay attention to what actually comes out when you press the switch.

08

Hint 1: Looks like there's a portalable surface behind the mesh wall...

Hint 2: Those Edgeless Safety Cubes sure do bounce around when they hit a solid surface...

Hint 3: The second room is laid out in a very interesting manner. Angled surfaces on both sides of the room opposite each other, perfectly symmetrical... coincidence?

Course 04: Excursion Funnels

01

Hint 1: Remember, almost anything can travel through a portal...

Hint 2: Keep track of whose portal is 'retrieving' the excursion funnel, it's important at the end.

02

Hint 1: Think about the trajectory you take when you step on a faith plate.

Hint 2: Objects can flow through Excursion Funnels too.

Hint 3: What does the glass panel reveal after it is moved?

03

Hint 1: Funnels can send you on vertical excursions as well as horizontal ones.

Hint 2: That angled surface looks good for a fling. Now if only there was a way to land on something in mid-air...

04

Hint 1: This epic room comes down to being able to travel around via intelligent placement of anti-gravity devices.

Hint 2: So you've retrieved a Thermal Beam using one of your portals. Can you make it to the receptacle using only one player's funnel redirecting skills?

Hint 3: Stay close when travelling in Excursion Funnels! Use the time to bond emotionally.

05

Hint 1: Reversing the polarity isn't just the cure-all problem solver in science fiction shows; it's also a useful tool for operating Excursion Funnels.

Hint 2: Remember, the original funnel being fired from the generator will never disappear, making it a useful place for a player to wait.

06

Hint 1: Ever tried moving left or right while travelling in a funnel? If you have, you probably fell out and got laughed at. However, it isn't always a stupid thing to do.

Hint 2: Your reward for making it across is access to a polarity reversing button. Use it wisely.

07

Hint 1: You should share the use of the Excursion Funnel whenever you can.

Hint 2: When one player gets to higher ground, they should survey the chamber from this new vantage point and see what changes.

08

Hint 1: Be ready to put your life in your partner's hands... let's hope he doesn't hate you.

Hint 2: It's not over once you get to the end of the maze. Use your new line of sight for a shortcut.

Hint 3: Remember, a flat floor means a vertical funnel can be created.

09

Hint 1: Use some quick-witted bridge placement when it seems you are most exposed to protect yourselves.

Hint 2: What goes up... probably shouldn't come back down, as the turrets will kill you.

Hint 3: Turrets ruining your life? Maybe you can use that portalable wall behind them for something...

Course 05: Mobility Gels

01

Hint 1: That button will lower both elevators.

Hint 2: Just worry about getting one player to the top to start with.

02

Hint 1: That gel sure gets everywhere; into portals, into Excursion Funnels...

Hint 2: That Emancipation Grill wall has a patch of clear space that offers a view of the rest of the chamber.

Hint 3: Those platforms at the bottom of the pit are spaced apart quite nicely... one might be forgiven for thinking the distance is related to the solution to the chamber.

03

Hint 1: What happens when gel meets a Hard Light Surface?

Hint 2: Take advantage of a player's alternative vantage point; it could offer portal opportunities not possible elsewhere.

04

Hint 1: Think about the placement of the conspicuous angled surfaces in the first room.

Hint 2: The entire structure of the second room is a clue as to its solution; the angles and flat portalable panels and their locations are screaming out their purpose to you.

Hint 3: Remember that the gel can stick to almost any surface... no matter the angle of said surface.

05

Hint 1: That Propulsion Gel sure gives you a lot of speed and momentum.

Hint 2: Timing is everything in the first room.

Hint 3: Those spike crushers sure are fast... if only there was a way to speed up and outrun them. Oh wait.

Hint 4: Momentum, it's like gold dust in its rarity. You'll have to generate it by any means necessary... even without gravity's assistance.

06

Hint 1: Forget about progressing without taking care of those turrets somehow.

Hint 2: A Thermal Beam and a Redirection Cube... but what purpose do they serve without a receptacle?

Hint 3: Whoever launches off that ramp is in for a trip to goo paradise without some clever and quick portal placement to help keep them aloft.

07

Hint 1: Every portalable surface here is hinting at the solution.

Hint 2: The problem is the grill; how can you create the fling needed to get to the raised bridge in time?

Hint 3: Maintaining your momentum infinitely is possible here. Redirecting it is the problem.

08

Hint 1: That's a quite a gap you'll have to clear for the first room. Remember that you have access to both gels here.

Hint 2: The placement and angles of the portalable surfaces in the second short are will tell you how to use them.

Hint 3: The final room you'll ever have to face is an epic undertaking of testing. The door GLaDOS is so desperate to open is right in front of you... over a huge gap.

Hint 4: Flinging upwards is the order of the day.

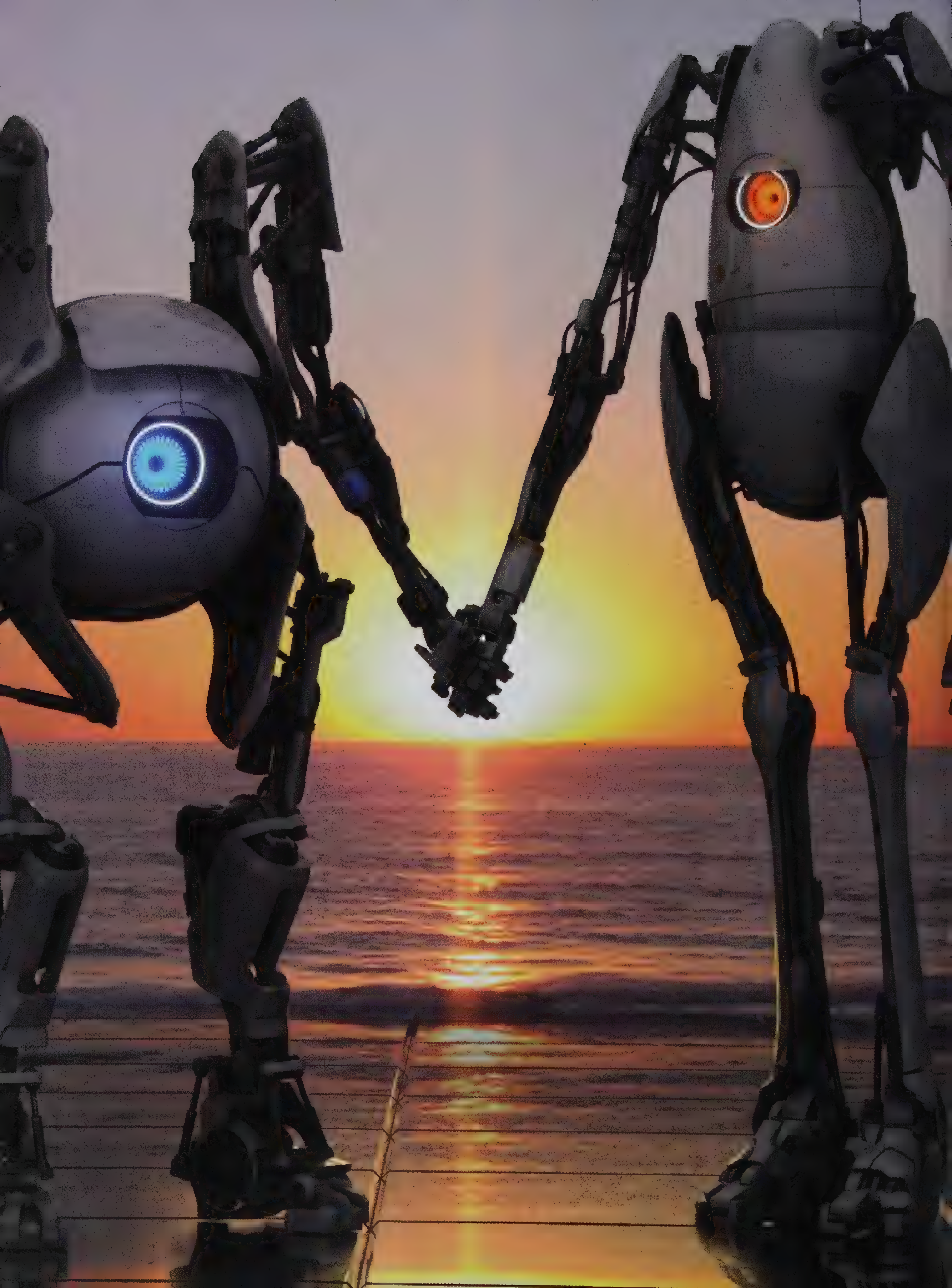
Hint 5: Propulsion Gel affects Storage Cubes in interesting ways...

Hint 6: Three Thermal Beams in a row... if only they could be blocked sequentially.

Hint 7: Both gel and Excursion Funnels are unaffected by Emancipation Grills.

Hint 8: Those blasted turrets must be dealt with... didn't you just see something about how to deal with them?

Hint 9: Flings, Repulsion Gel and Excursion Funnels... combine them all for your final puzzle-solving leap of faith.

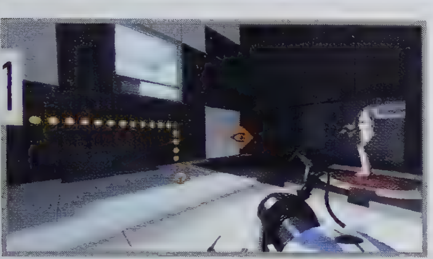


PRELIMINARY VISUAL ASSISTANCE

As with the the Solitary Visual Assistance section, these screenshots are designed to give you a little extra push towards the answer should you require it. Consider what is being displayed in each screen and take into account the angle and viewpoint it displays in addition to the puzzle elements and portals being shown. Also, if P-Body or Atlas is shown in the image, take into account what action he is taking or where he is and try to incorporate it into your possible solution. For the full walkthrough, consult the Cooperative Game walkthrough which provides further elaboration including chamber overviews, along with room summaries and a complete step-by-step solution

Course 01: Team Building

01



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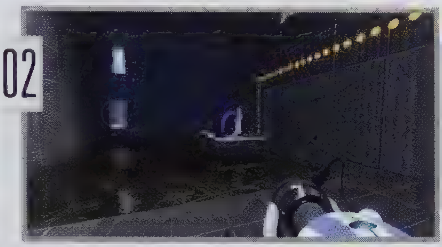

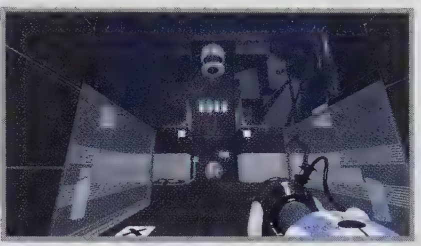

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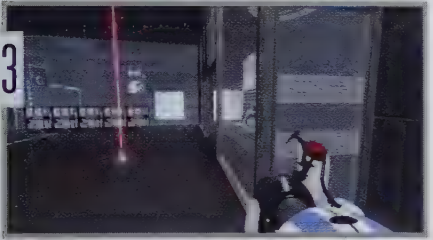

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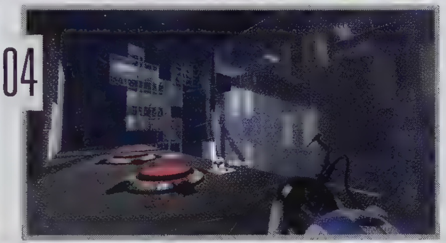

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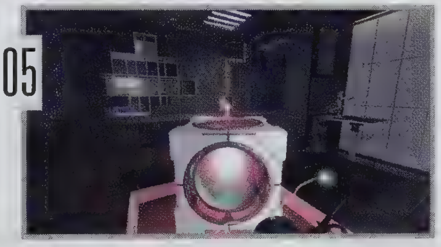

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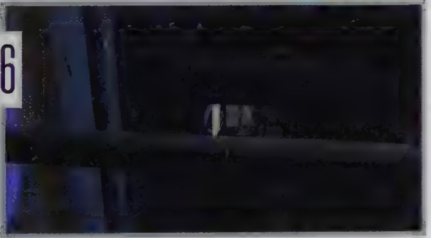
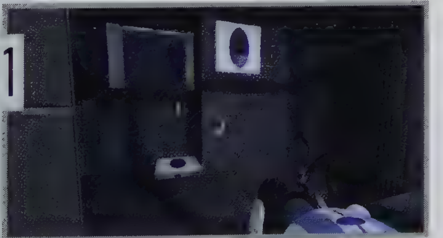


Course 02: Mass and Velocity

01



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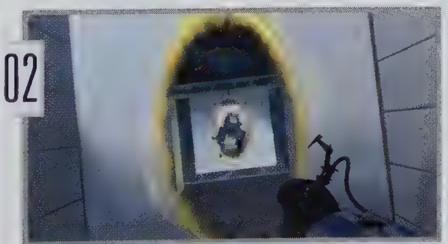

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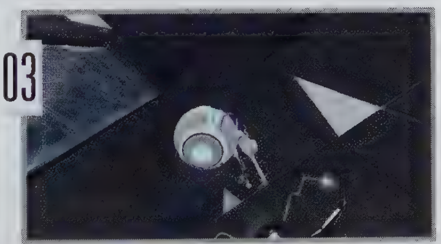

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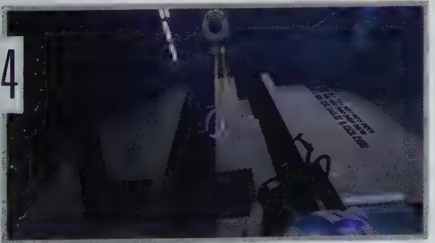

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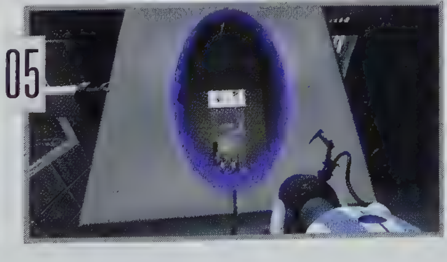

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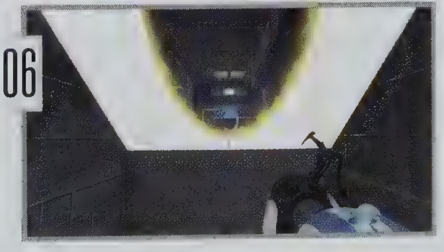

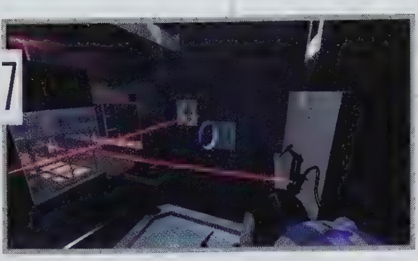
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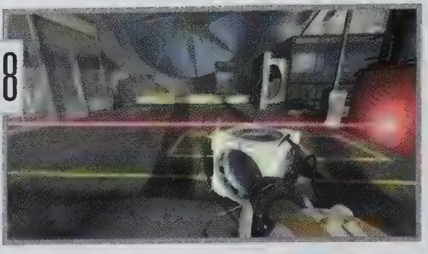
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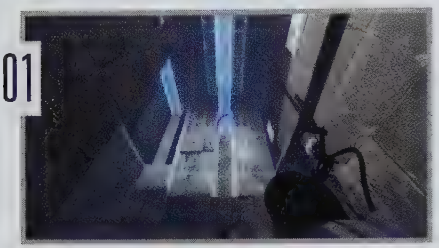
Course 03: Hard Light Surfaces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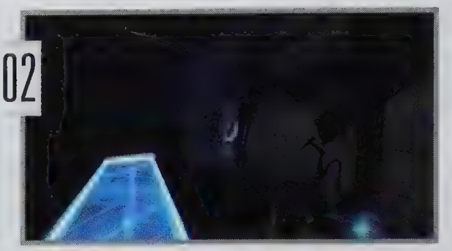
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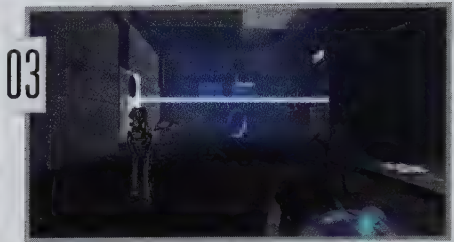
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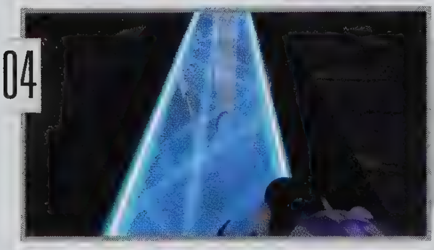
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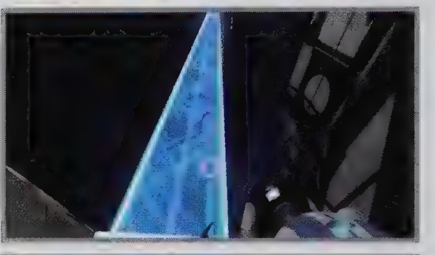

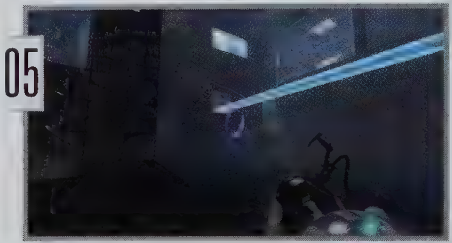
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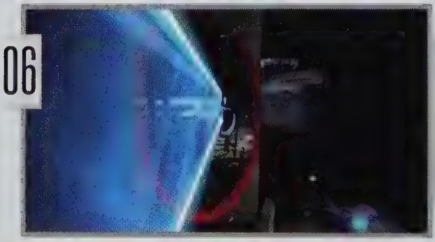
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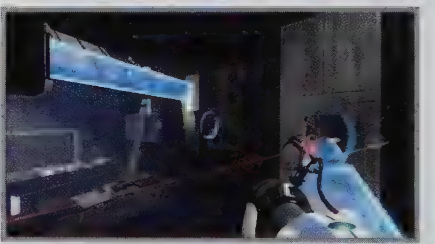

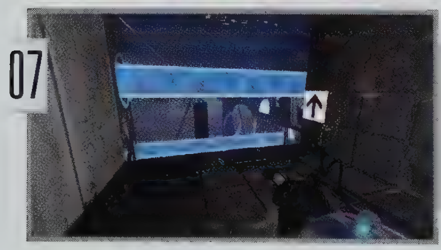
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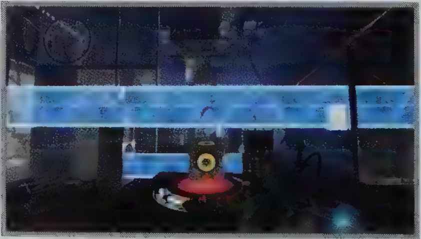

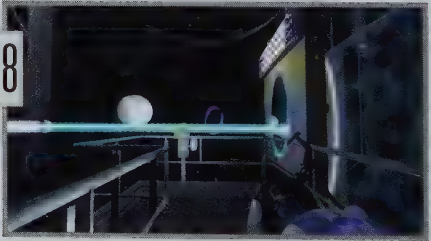
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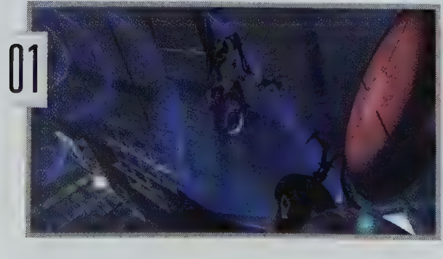
Course 04: Excursion Funnels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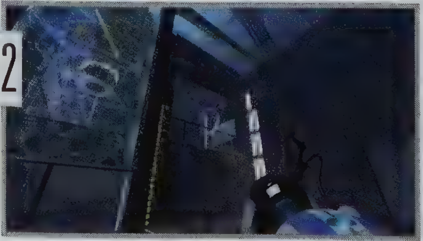
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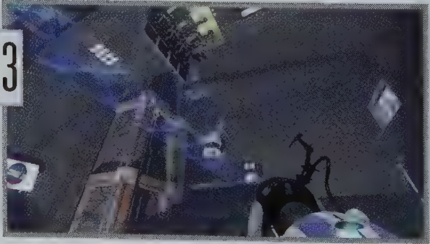
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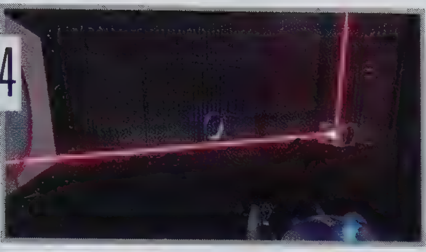

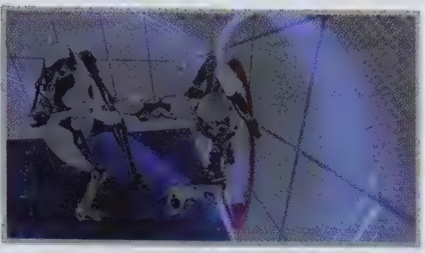

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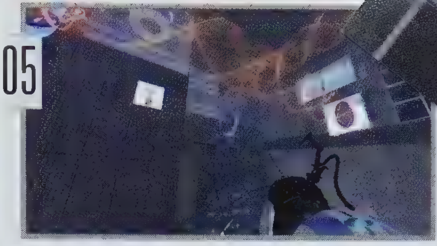

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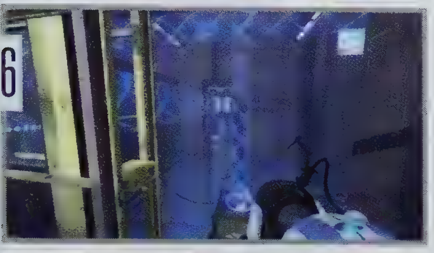

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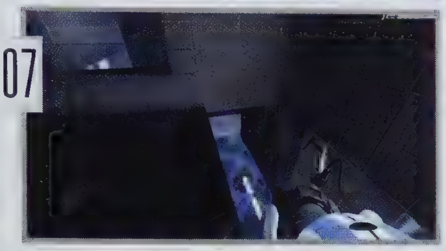

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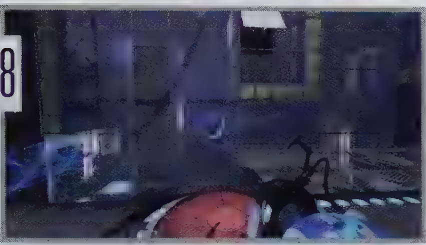

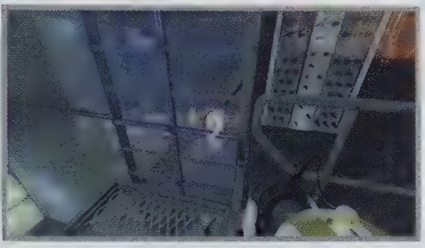

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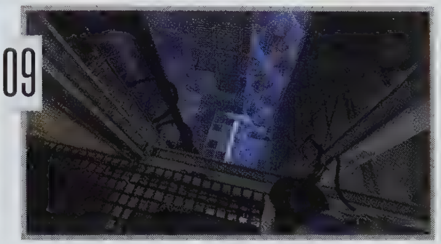
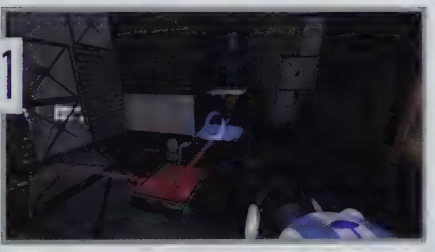


Course 05: Mobility Gels

01



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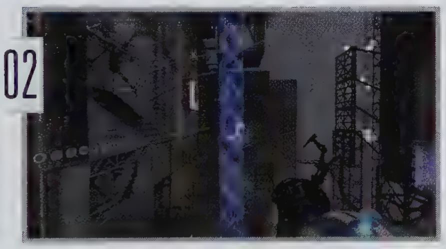

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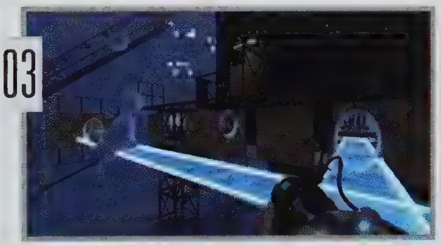

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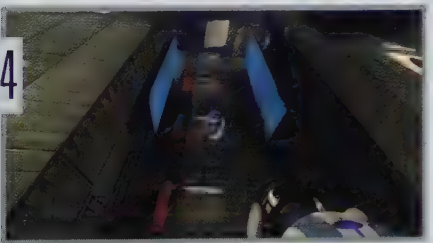

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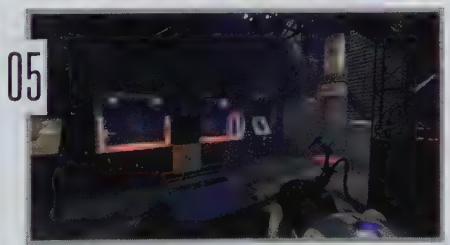

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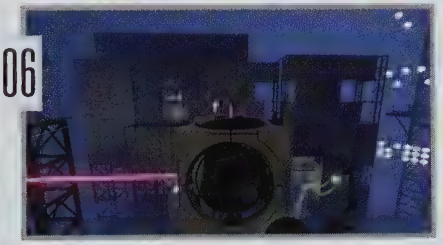

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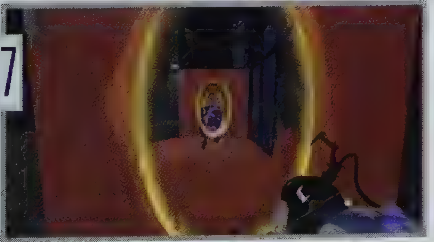

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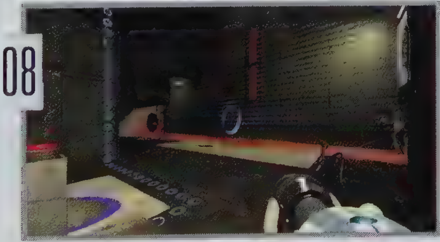
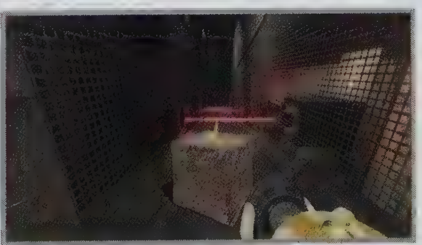
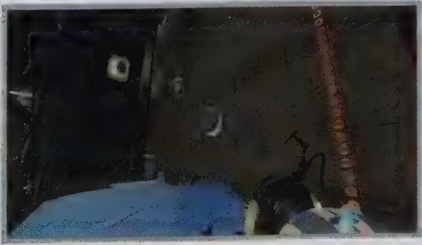
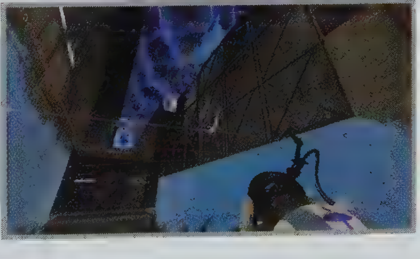
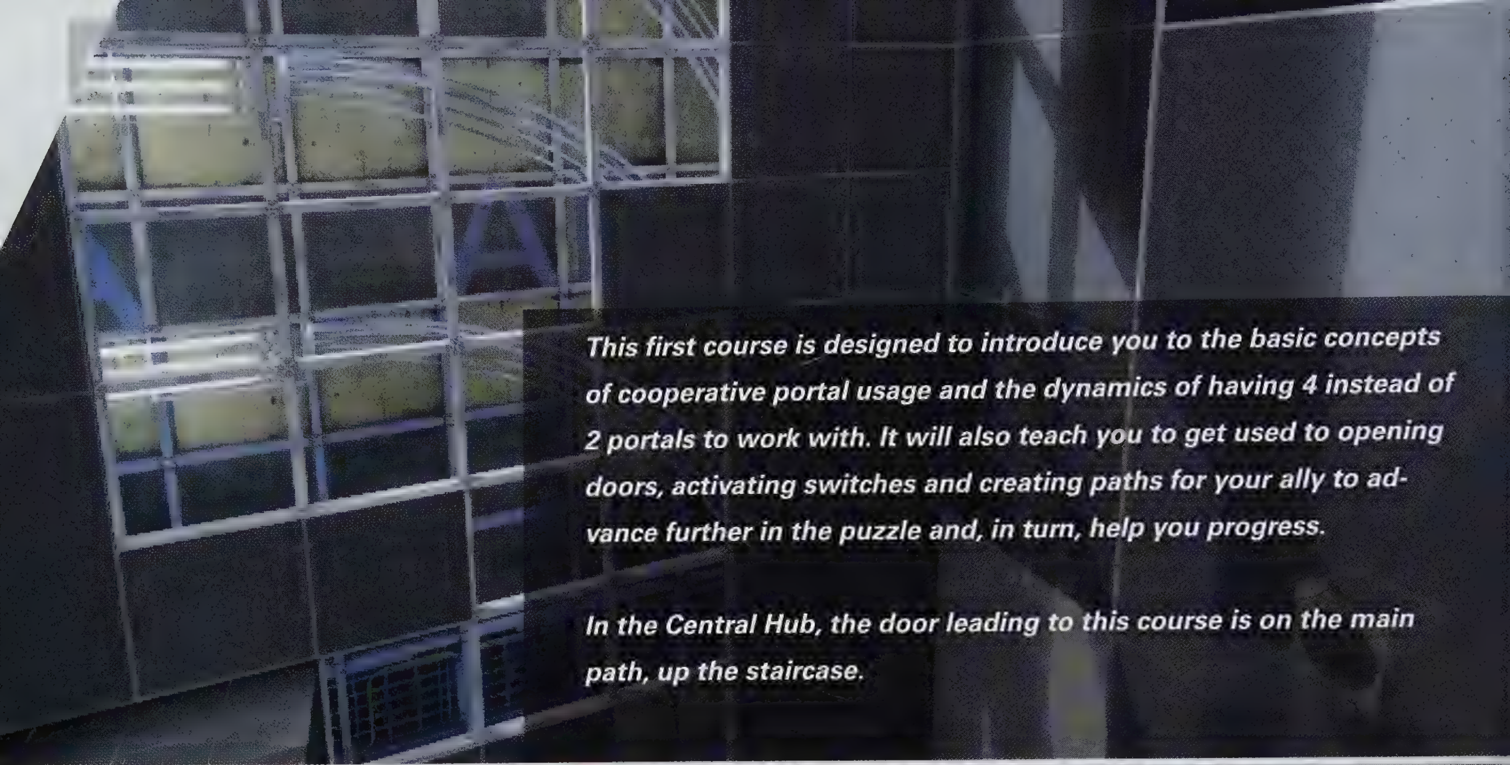






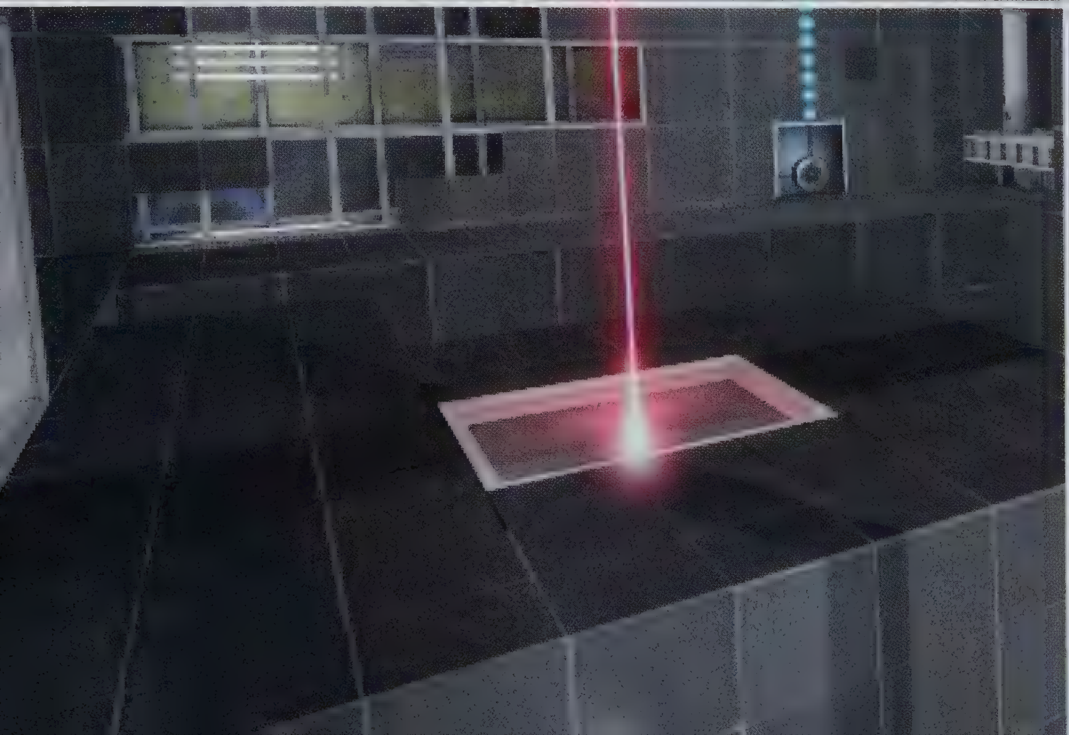




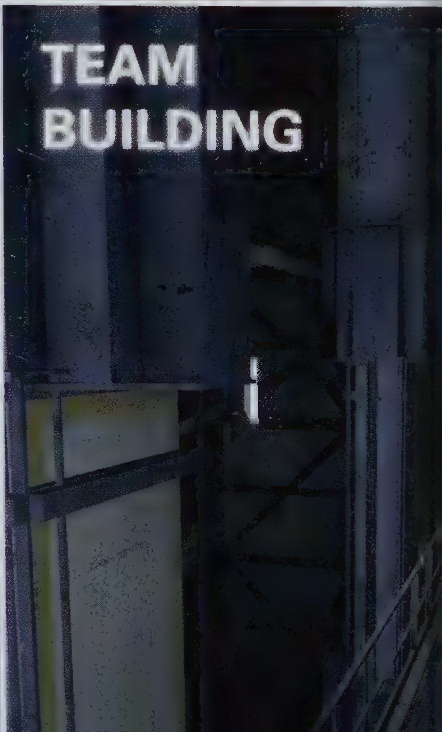
This first course is designed to introduce you to the basic concepts of cooperative portal usage and the dynamics of having 4 instead of 2 portals to work with. It will also teach you to get used to opening doors, activating switches and creating paths for your ally to advance further in the puzzle and, in turn, help you progress.

In the Central Hub, the door leading to this course is on the main path, up the staircase.

COURSE 01



TEAM BUILDING



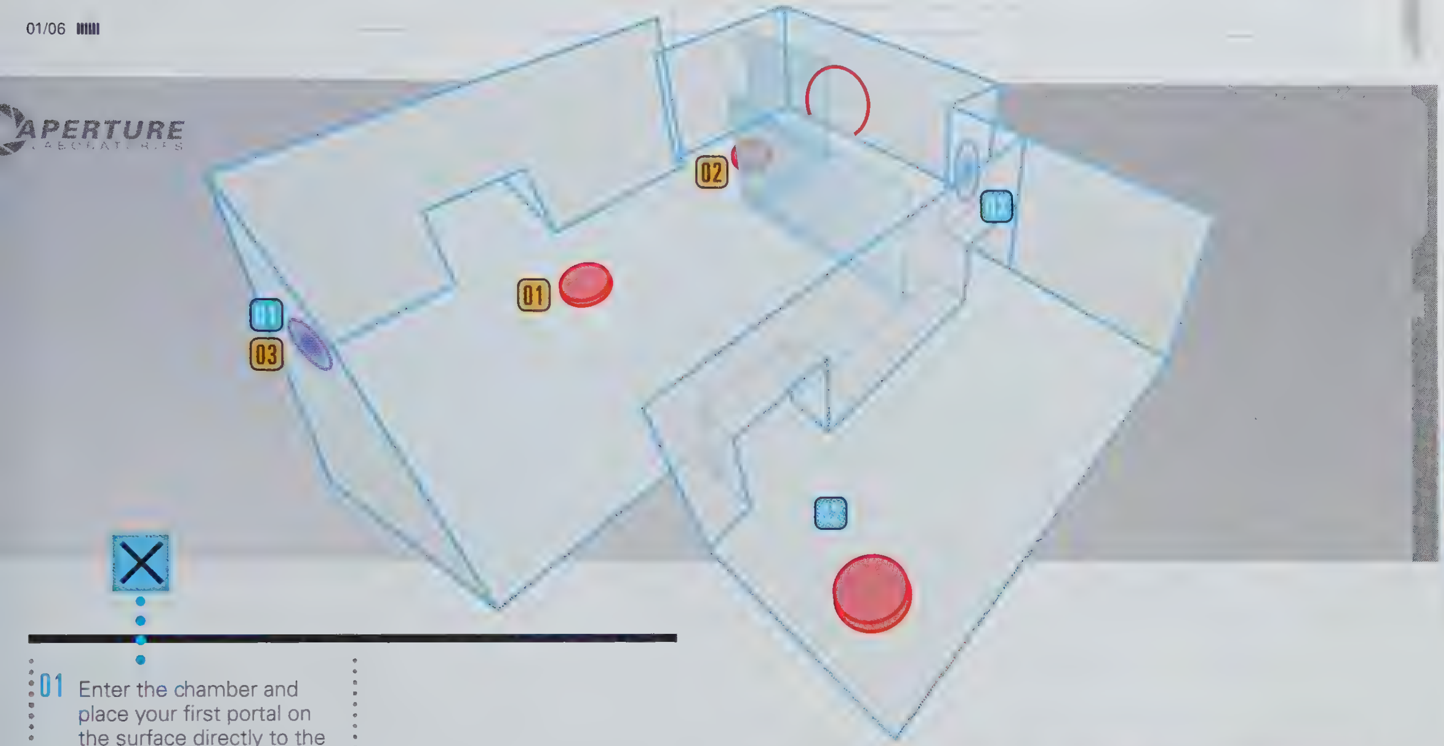
01

01/06

The very first co-op chamber in the game is exactly what you would expect it to be, very simple with only buttons and portals being the elements you have to work with.

Room 01 Summary | The goal here is to get through to the other side of the room which is separated by glass. There are 2 buttons that operate the doors needed to gain access to either side of the room, and portalable surfaces on both sides which you will need to make use of.

07_071



01 Enter the chamber and place your first portal on the surface directly to the right as you enter the room.

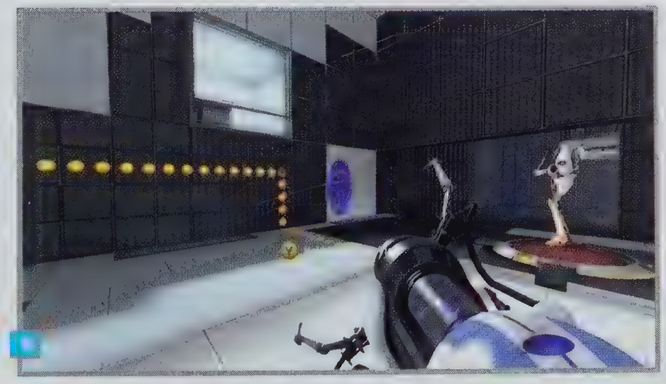
01 Stand on the button directly in front of the entrance to open the door just ahead of the button.

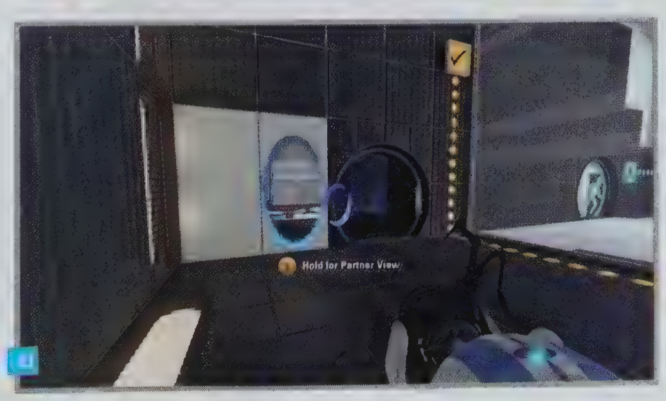
02 Head through the door and into the small corridor behind it.

02 As soon as Blue is through the door, step off the button and head left to the second button to stand on that one, which will then open up the exit door from the small corridor which Blue is in.

03 Walk through this newly opened door and place an exit portal on the wall to the right of it.

03 You then simply need to walk through the first portal to make it to the area near the exit door and so both players can easily finish the chamber.



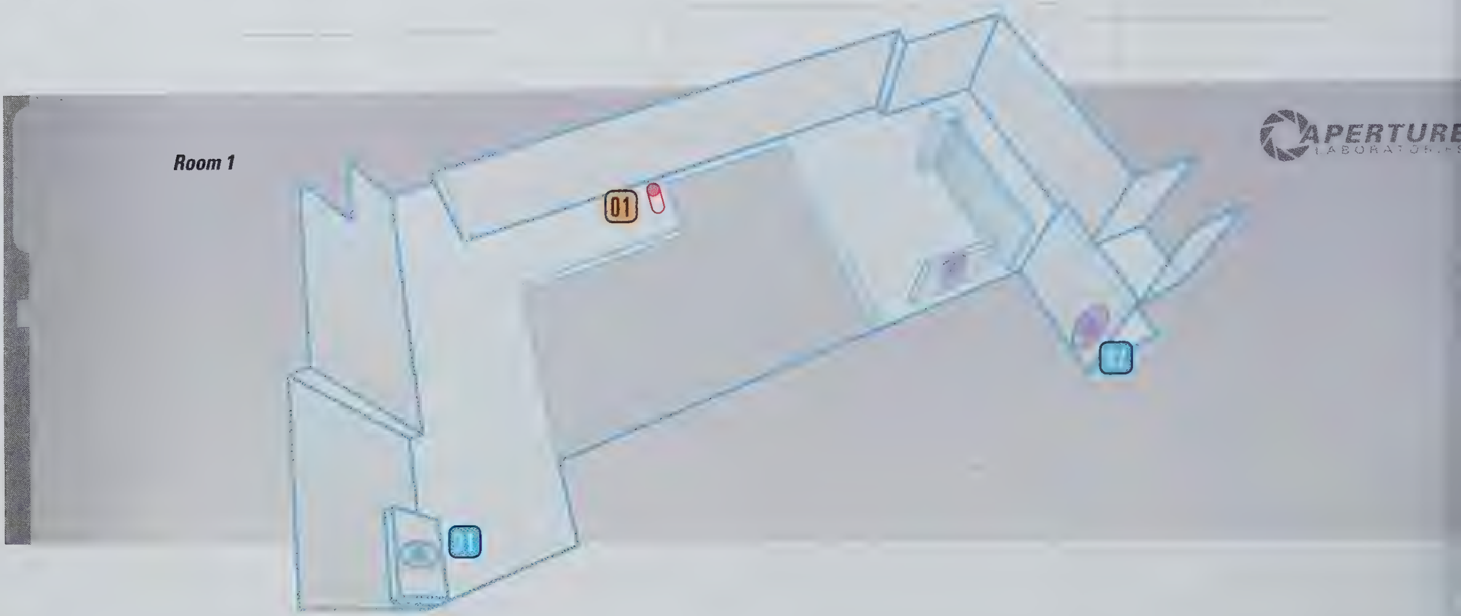


02

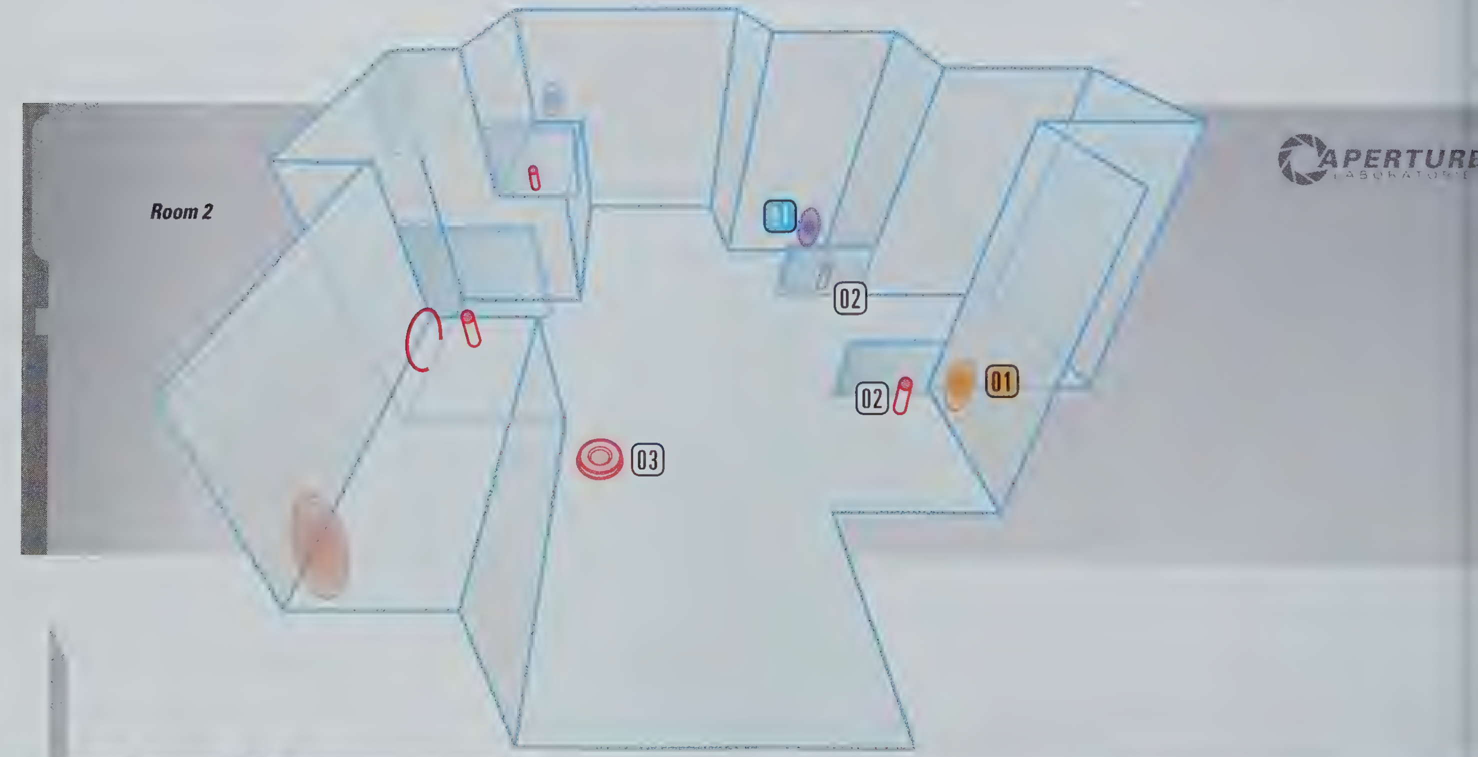
This chamber adds several elements to the equation, such as a water hazard you have to negotiate and a timed door. This is also the first instance of a chamber being divided into individual puzzle rooms via airlock doors. You'll also be presented with puzzle elements that require multiple switches to activate and which must be pressed quickly, forcing you to communicate and plan as a team.

07_072

Room 01 Summary | There is a large water hazard, with the airlock door on the other side of the room. The button will open the airlock door for a brief time. One player will have to man the switch while the other heads to the door.



Room 02 Summary | You will receive the Edgeless Cube required to open the door when all four switches around the room have been pressed quickly, so you will have to move between them swiftly.

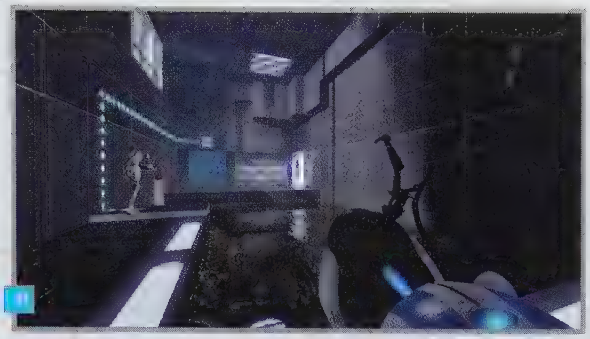


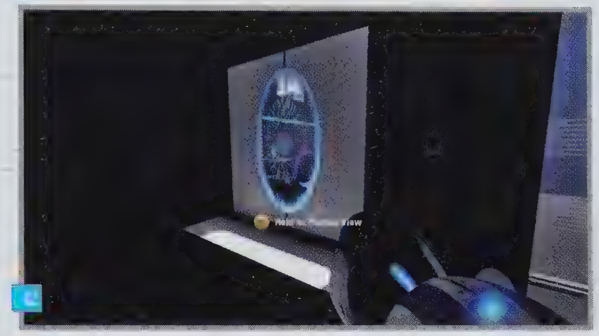
Room 1

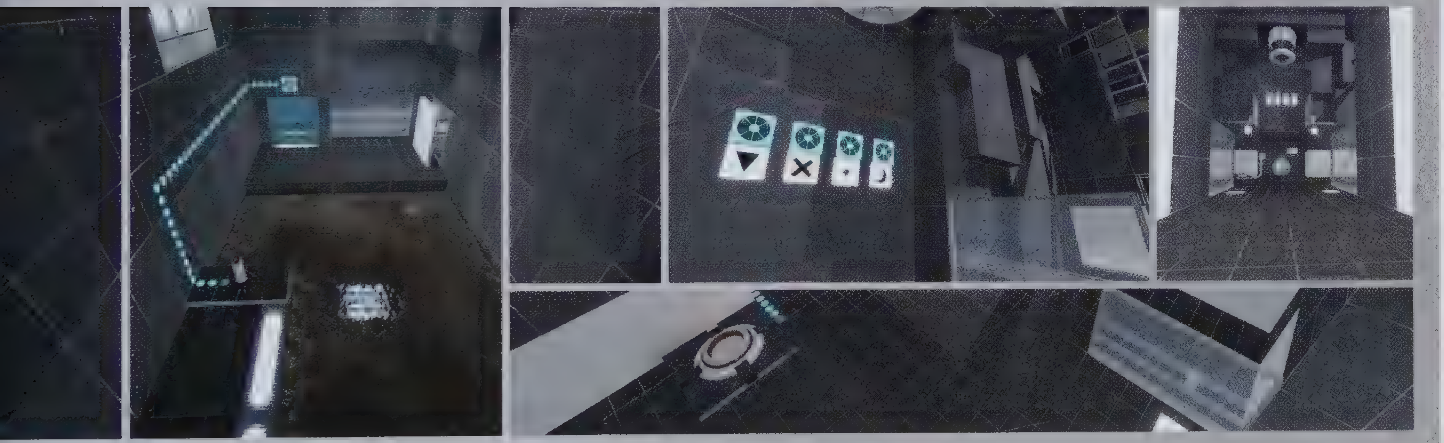
01 Place a portal on the surface in the right-hand corner of the room as you enter, and then fire your exit portal onto the surface on the other side of the moat, before stepping through it to reach the other side.

01 Press the button to lower the panels which then allows Blue to pass through.

02 Reposition your exit portal so that it is on the surface nearby, so that Orange can step through it and join you on the other side of the panels.







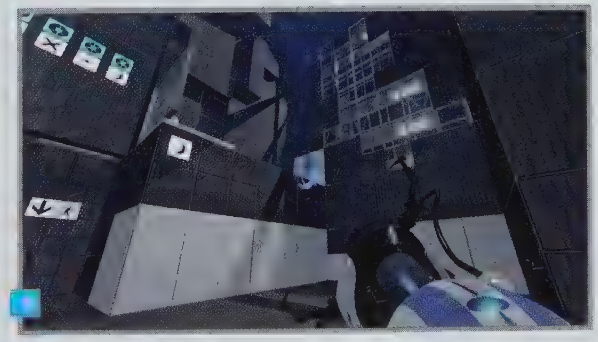
Room 2

01 Place your first portal on the surface near the button to the right as you enter the room. The exit portal should then be placed on the surface on the ledge near the higher right-hand button.

01 Place your portals in the same place on the left-hand side.

02 Both players should simultaneously press the buttons they are near and then swiftly step through their portals to reach the next buttons quickly and press them.

03 Once the Edgeless Cube has been dispensed, one player should place it onto the receptacle and then both players can exit the chamber.



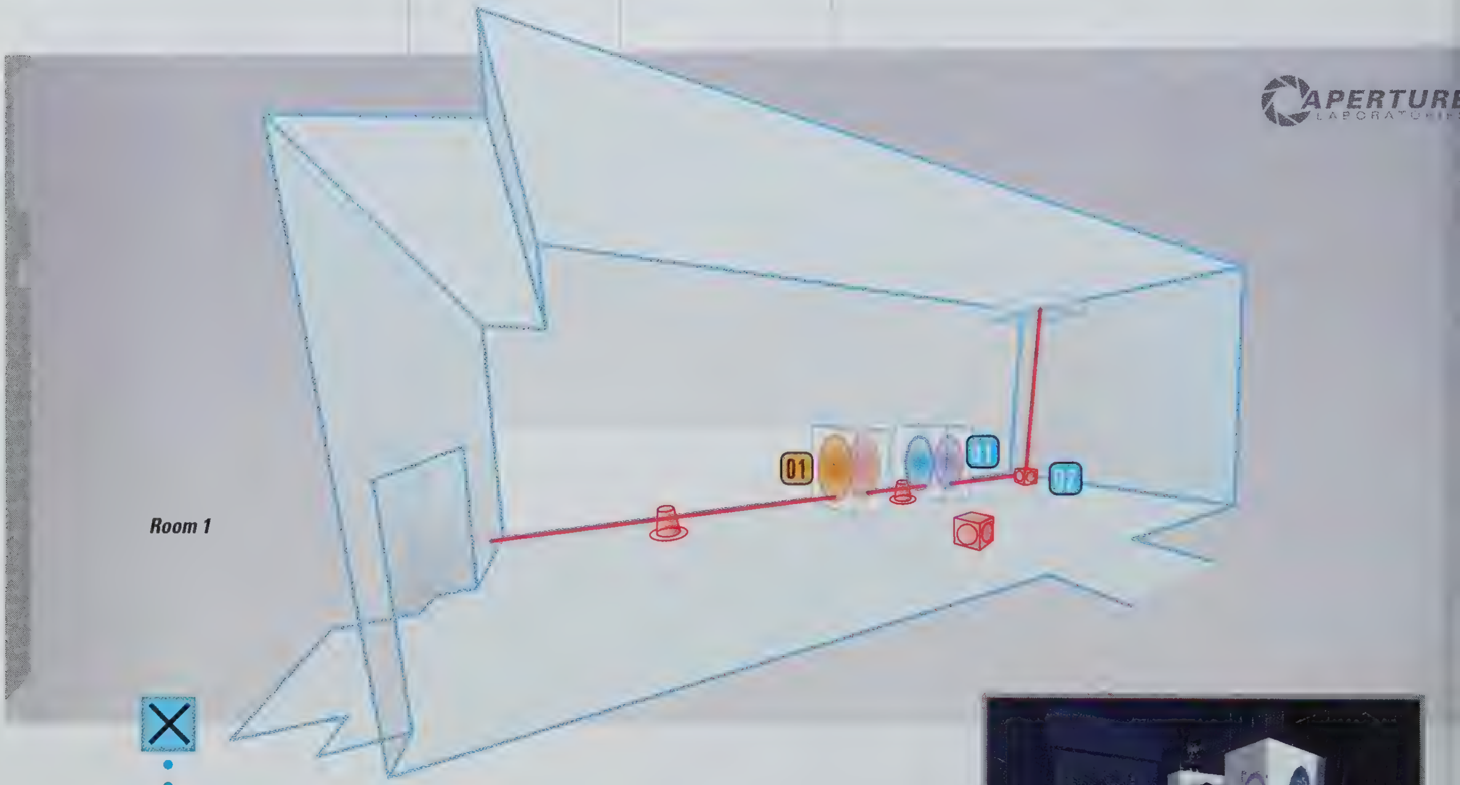
03

03/06

This chamber introduces the next basic element in cooperative puzzles, Thermal Discouragement Beams, Thermal Beam Relays and Discouragement Redirection Cubes. You will also come across turrets for the first time in co-op, and see how they can be dealt with differently when you have a teammate helping you.

07_073

Room 01 Summary | There are several walls in the way of the Relay and receptacle. The beam must be sent through the walls, hitting the relay and receptacle.

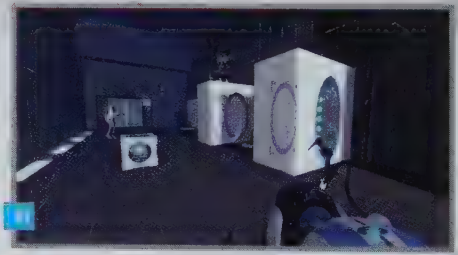


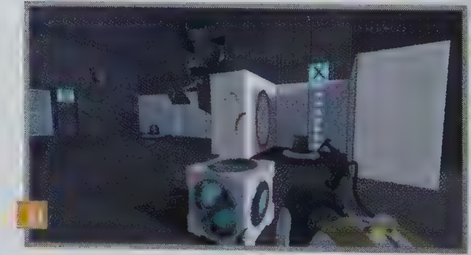
01 You will need to place your portals on either side of the right-hand wall.

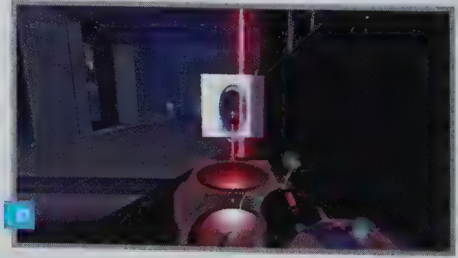
Room 1

01 Do the same thing on the left-hand protruding wall. If done correctly, players should have a direct line of sight through both walls.

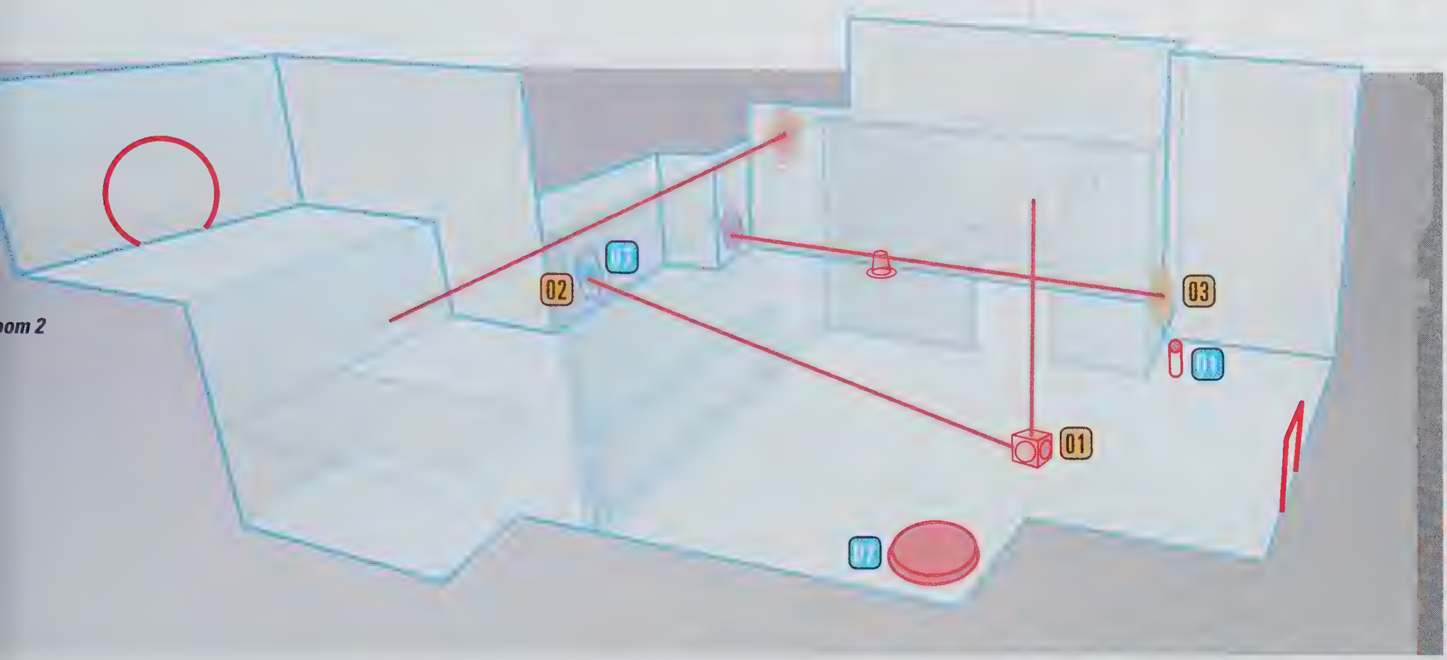
02 Pick up the Redirection Cube and take it over to the Thermal Beam so that the beam is reflected through the portals. Adjust the angle of the Thermal Beam so that it is hitting both relays and then drop the cube in place and both players can then head through the exit.

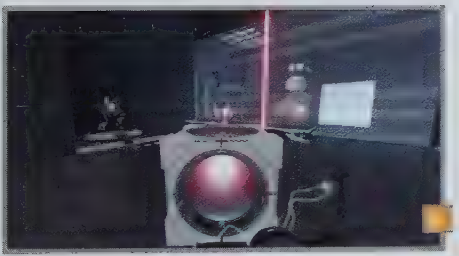


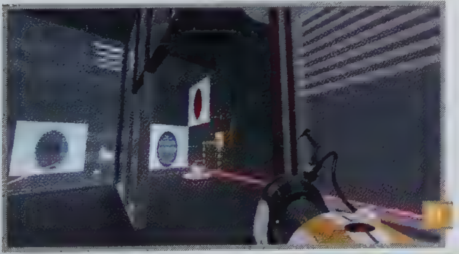


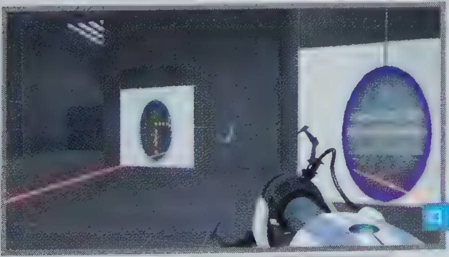


Room 02 Summary | The beam receptacle is on the left wall behind the glass, you will need to hit the relay and send the beam into it. You will have to destroy the turrets first so you can place your portals in the correct configuration to make the beam hit the relay and be sent into the receptacle, raising the stairs and allowing you to get to the exit.









01 Hit the button to dispense a Redirection Cube.

Room 2

01 Wait by the cube dispenser and then pick up the cube and take it over to the Thermal Beam so that the beam is being redirected.

02 Stand on the button to lower the protective panels.

02 Adjust the angle of the beam so that it destroys all of the turrets. When they are all destroyed, point the beam into the portalable panel directly in front of you.

03 Put down the Redirection Cube so that you can go through the opening in the glass and place a portal on the surface directly to the right. Place your other portal on the surface above the beam relay.

03 Place a portal onto the panel the beam is hitting and another on the surface directly behind the beam relay. Adjust the Redirection Cube if need be, so it is hitting the relay and the receptacle. When it does, the stairs to the exit should rise.

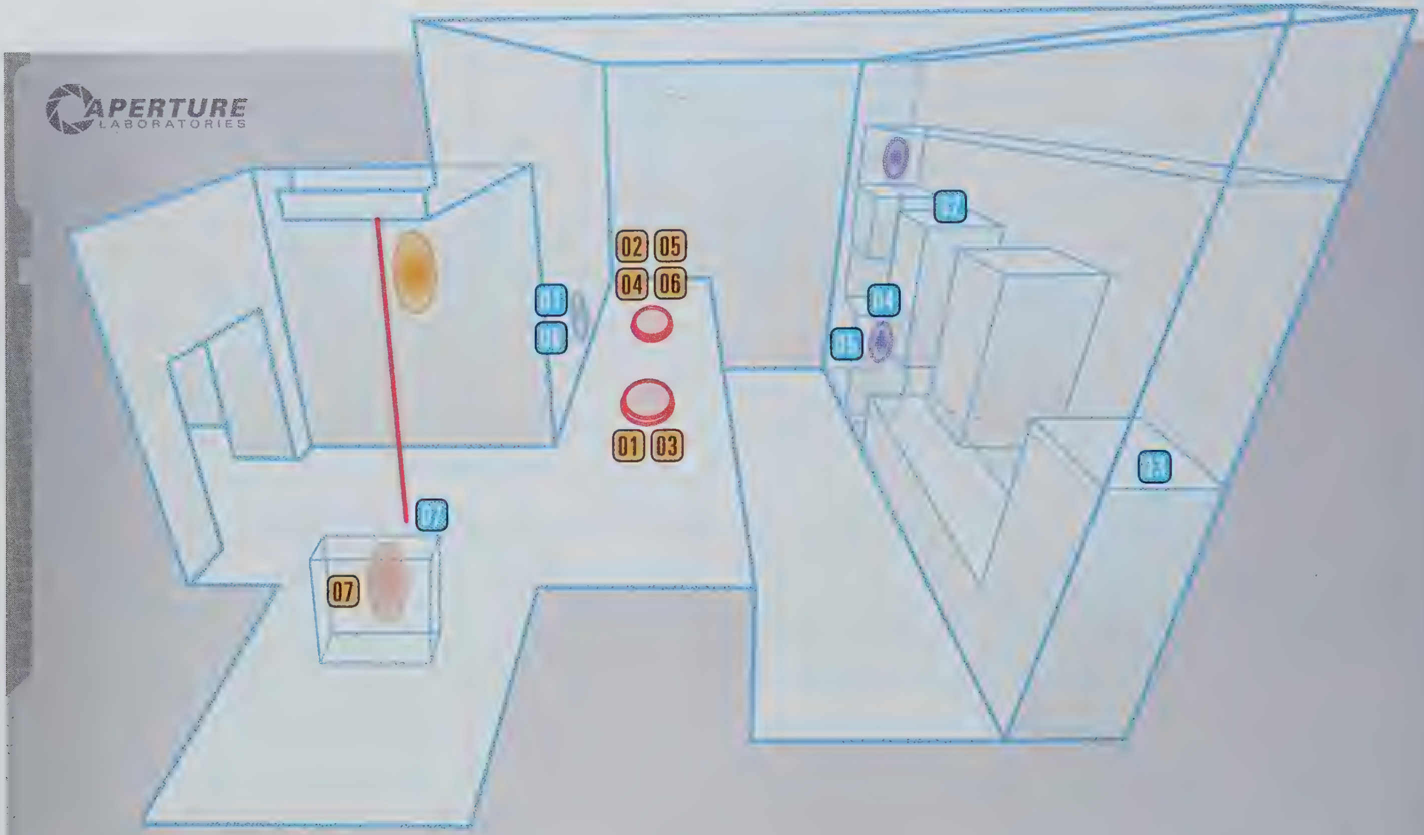
04

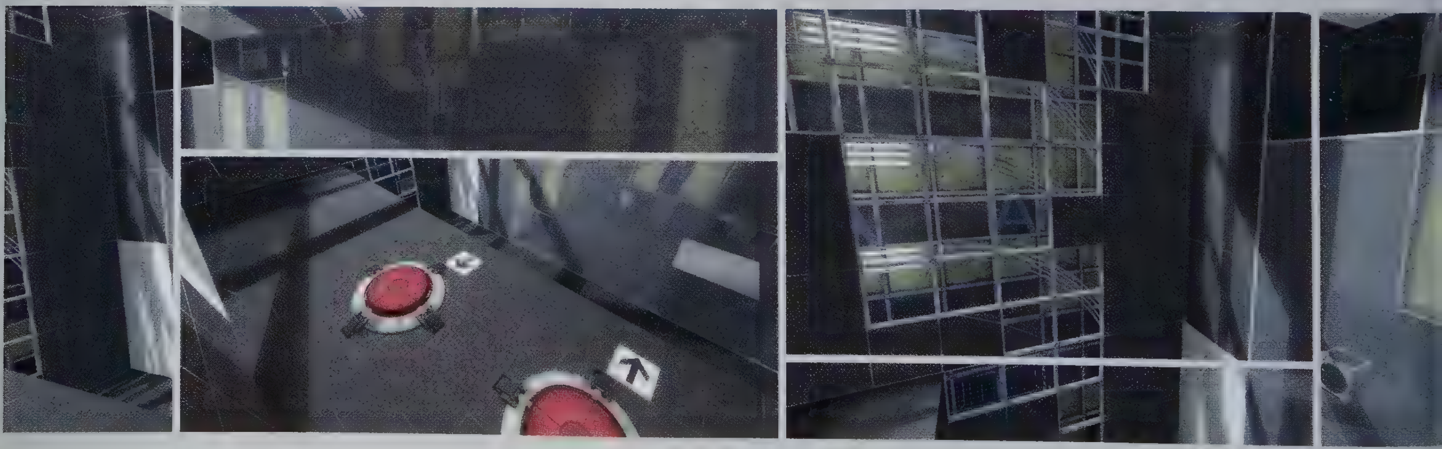
04/06

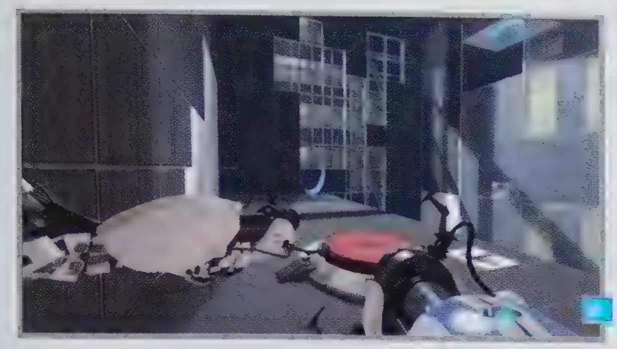
This is a chamber where the success of the team will rely on good communication and teamwork. This is a rare instance of a button that controls the shape of the Chamber, and the puzzle revolves around it. The player inside the maze should make intelligent use of sparse portal surfaces to make your return journey quicker and easier.

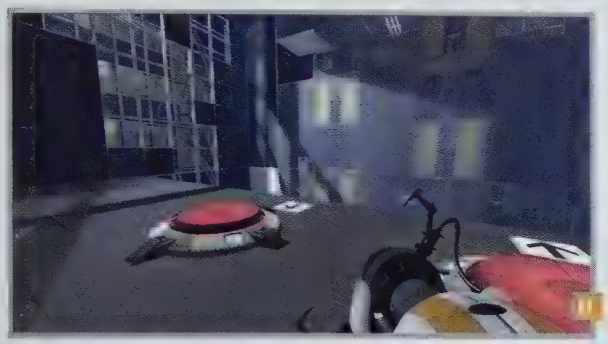
07_074

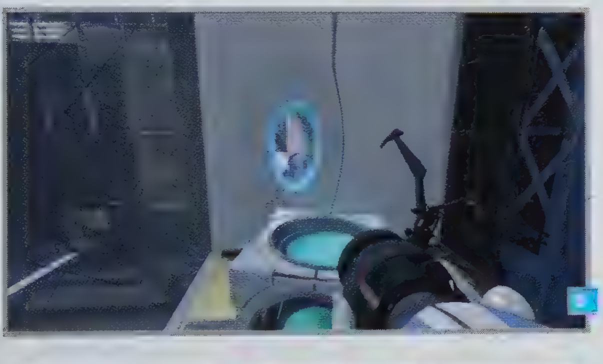
Room 01 Summary | The Redirection Cube needed to reflect this beam must be obtained from the moving wall maze on the other side of the room. One player must control these walls while the other navigates through the maze to retrieve the cube.

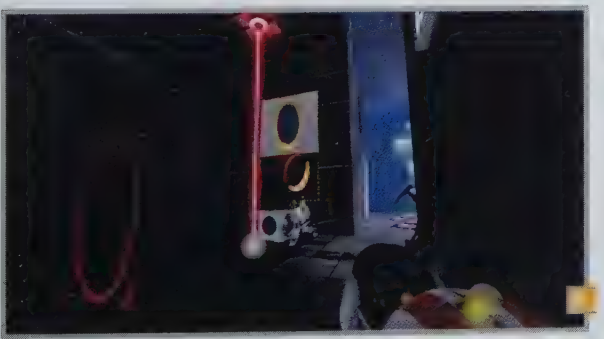


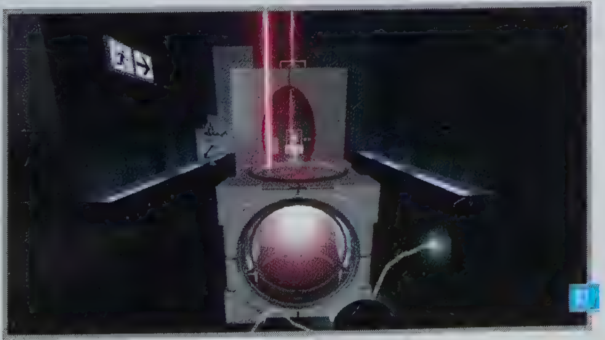












01 Create a portal on the wall behind the ledge and then place your exit portal on the ceiling on the opposite side of the pit so that you can cross over to the other side.

01 Use the buttons to control the walls and guide Blue through the maze to the Redirection Cube.

02 Start by moving forward past the first set of walls before Orange steps on either of the buttons.

02 Step on the button to lower the walls so that Blue can keep advancing.

03 After making it past the walls, drop down to the level below.

03 Then step on the button to raise the walls, allowing Blue to drop down even further to the bottom of the maze.

04 Switch buttons so that the walls can be lowered and Blue can stand on top of one of the sections.

04 This will allow you to pick up the Redirection Cube.

05 Then step off the button so that the wall is raised.

06 Once Blue has the cube, step back on the button so that the wall is lowered.

05 Then drop the cube momentarily and reposition the portal you have on the ceiling so that it is on the surface that has been exposed nearby.

06 Pick the cube back up and walk through the portal to reach the starting ledge.

07 While Blue carries the cube, head back around to the Thermal Beam and place a portal on the free standing wall near it, and then place an exit portal on the other surface on the opposite side.

07 Direct the Thermal Beam with the Redirection Cube through the portals so that it reaches the receptacle and powers the exit door, at which time the cube can be dropped and both players can exit the chamber.

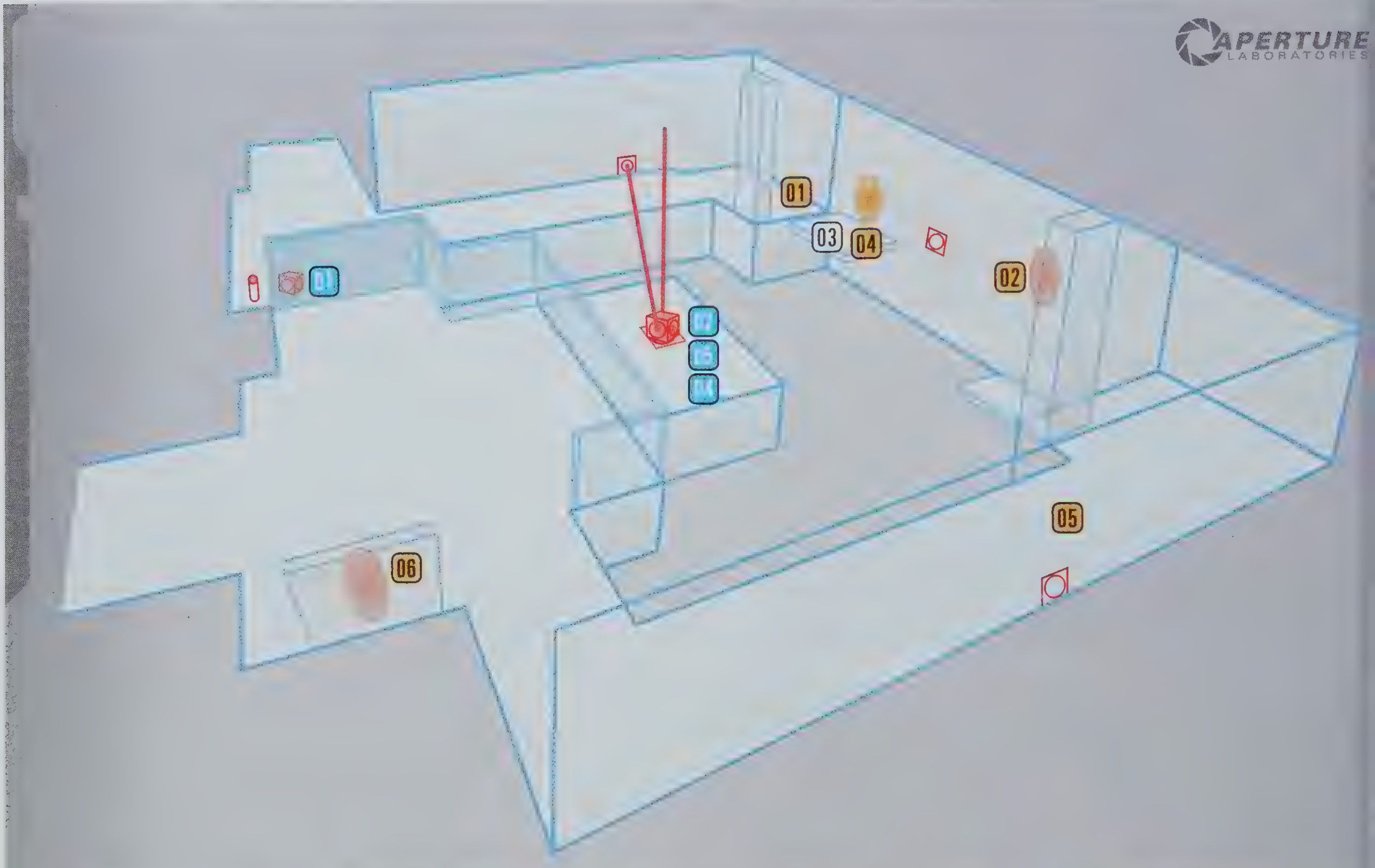
05

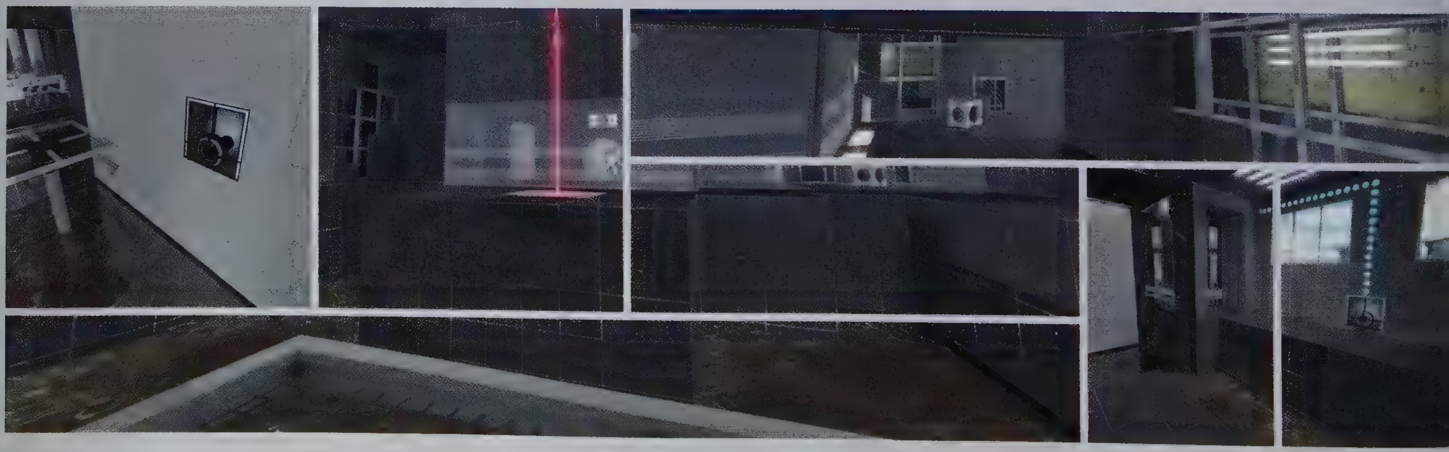
05/06

This Chamber features another puzzle involving Thermal Beams. Once again, players will need excellent communication and quick reflexes. It is strongly recommended you plan every step of your solution beforehand and verify with your partner before proceeding. Take your time to experiment with the different beam receptacles and to see the effects of triggering them.

Room 01 Summary | Players will need to make their way around the goo moat in order to reach the exit on the other side. You will have to interact with the beam-triggered obstacles to help your partner get across to the other side of the moat, where he can portal you to the exit.

07_075





01 Pick up the cube and start carrying it over towards the moat, where a Thermal Beam can be found firing down from the ceiling near the leading edge.

02 First reflect the Thermal Beam into the receptacle on the left-hand side so that it raises the spike press on that side.

01 You should walk around beneath the press and step onto the first platform..

02 Fire a portal above the second platform, and wait

03 Now move the beam into the central receptacle. The platform that Orange is on will begin to lower, but the other platform will begin to rise.

04 You will need to place a portal on the wall near the first platform and then step through the portals at the correct time so that you can land safely onto the second platform as it rises.

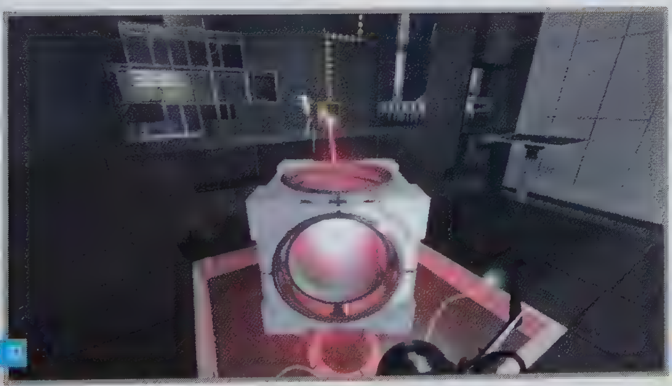
04 Once Orange is safely on this second platform, continue to raise the platform Orange is standing on to quite a high level. Then redirect the Thermal Beam into the right-hand receptacle so that the spike press on that side rises.

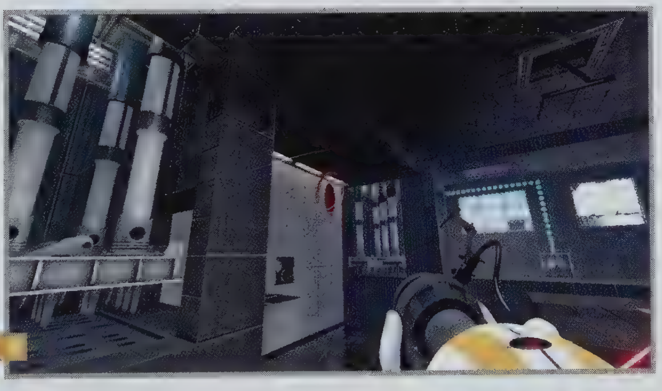
05 Now pass beneath the second spike press. Carry on along the side of the moat into the area behind the glass.

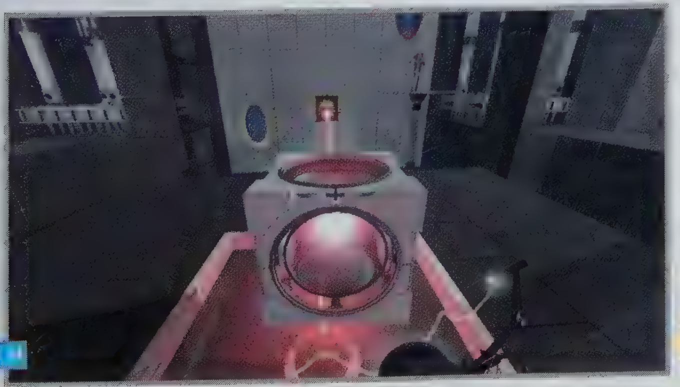
06 From here you can reposition your exit portal from the wall near the right-hand spike press, to the section of wall behind the glass.

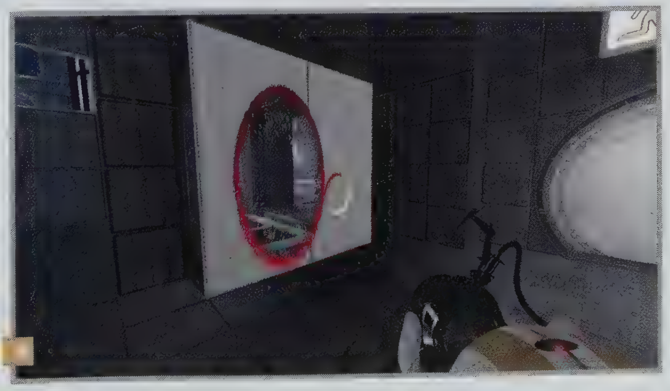
05 Redirect the Thermal Beam back to the left-hand receptacle so that the left spike press is raised, and then set down the Redirection Cube so that you can walk over and step through the portal to the exit area.

✓









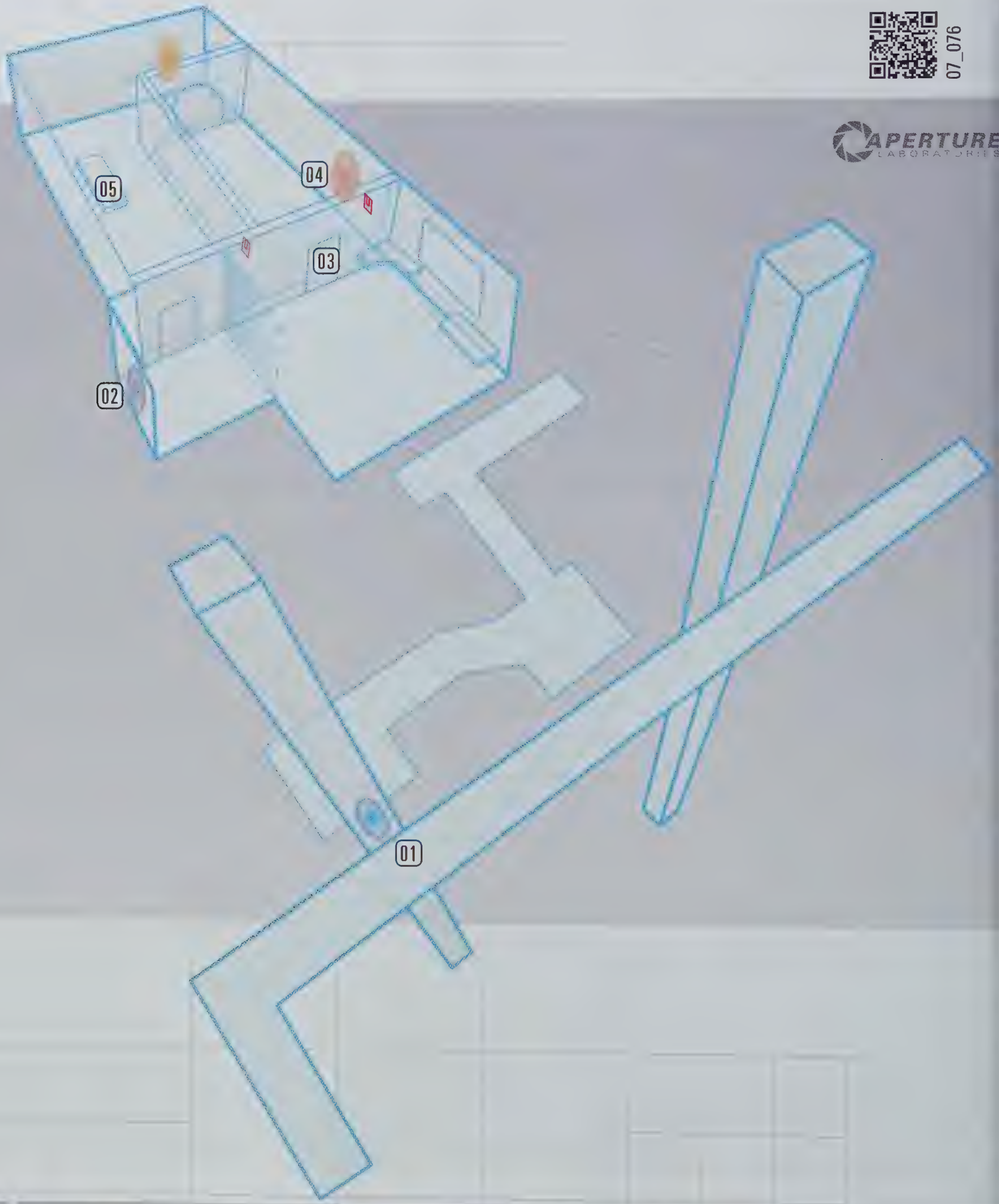
06

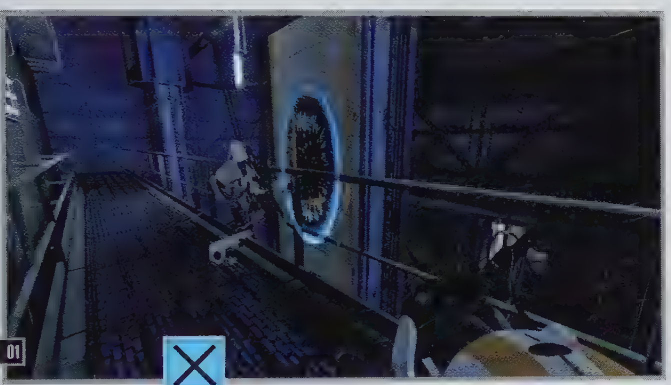
06/06

This chamber presents the first time in the co-op campaign that you will leave the official testing grounds of Aperture Science. The environment is reminiscent of some of the areas of the single-player campaign, with walkways and offices for you to navigate. You will also come across your first simultaneous lever pull puzzle, which is a good opportunity to make use of the Countdown Timer. This chamber must be completed by inserting the disc into the player to finish the course, as do all the final chambers in each course.

Room 01 Summary | This room is outside the official testing grounds, and as a result portal placement is not as clear-cut. Portalable surfaces are few and far between and must be sought out carefully. To reach the final room, a door must be opened that requires a simultaneous lever tpull by both players.

07_076

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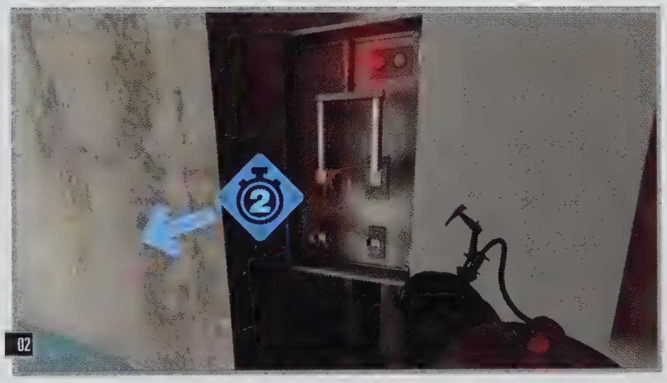
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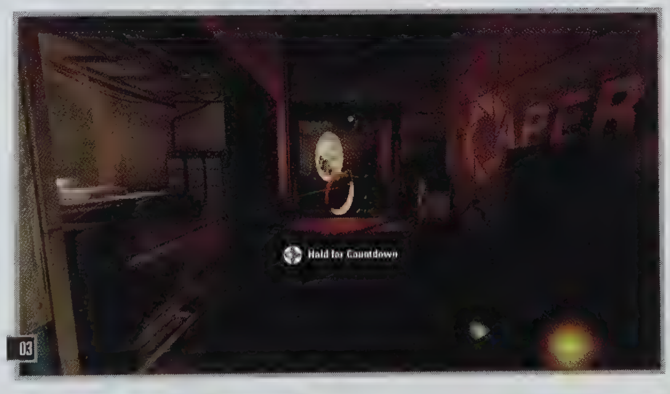
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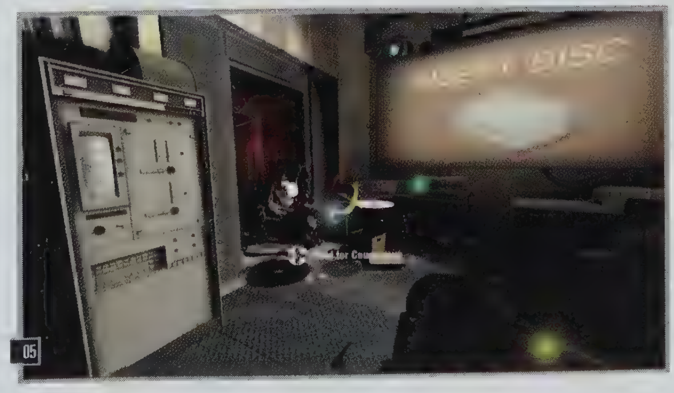

05

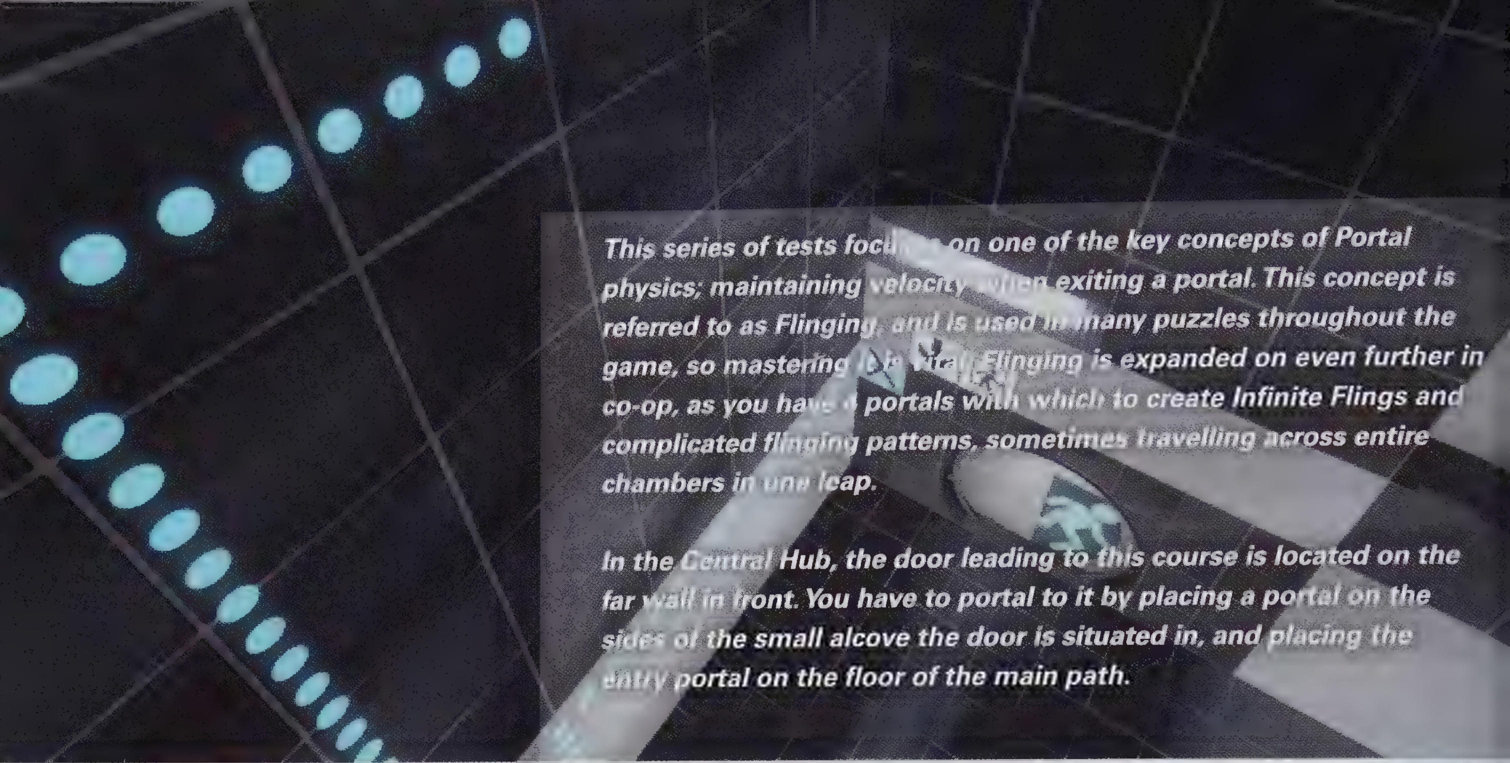
01 Walk along the catwalk for a short distance until you come across a small portalable surface on the side of one of the pillars. Either player should place a portal on this surface, then look down to the opposite side of the chasm, and place the exit portal on that surface. Step through the portal near the catwalks to reach the area below.

02 Go through the door to the left of the room with the disc drive in to reach a small corridor with a door at the end. This door is locked but there are two switches on either side of the corridor that can be used to open it if they are flipped simultaneously. Use the Countdown Timer to synchronize your timing.

03 The door only stays open for a very short period of time, however, so as soon as it is open one player will need to fire a portal through to the portalable surface on the other side of it.

04 Once the first portal is in position, the second portal can easily be placed on any of the surfaces in the corridor.

05 Once players are in the room on the other side of the door, the disc can easily be found lying on one of the desks in the middle of the room. Simply pick up the disk and step back through the portal, and then take it to the drive to complete the course.

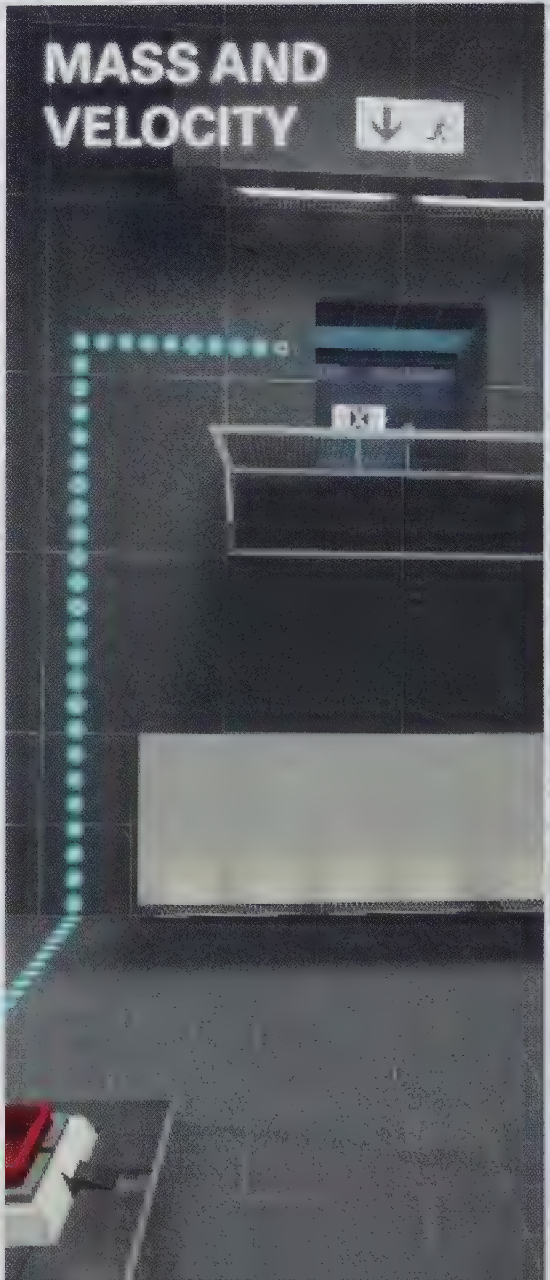


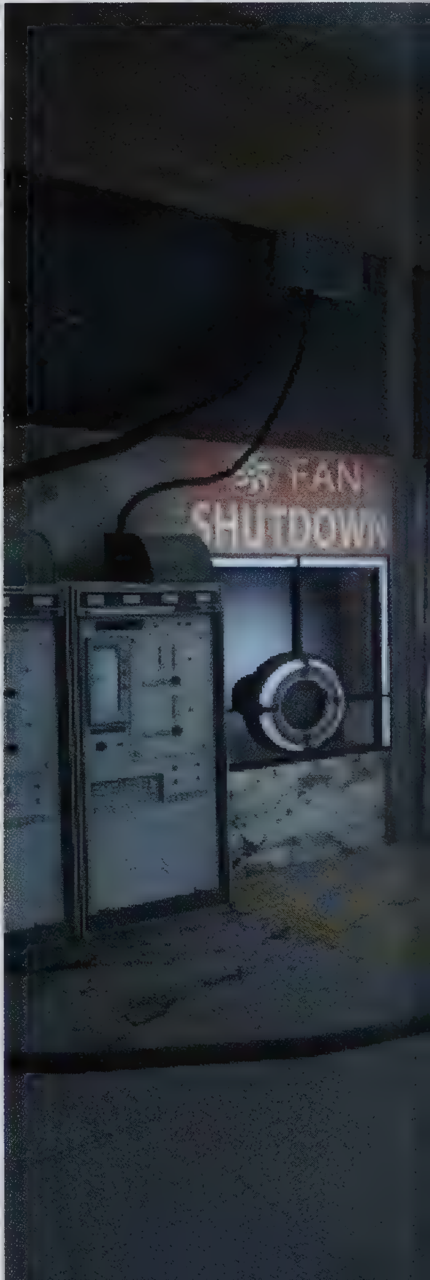
This series of tests focuses on one of the key concepts of Portal physics; maintaining velocity when exiting a portal. This concept is referred to as Flinging, and is used in many puzzles throughout the game, so mastering it is vital. Flinging is expanded on even further in co-op, as you have 4 portals with which to create Infinite Flings and complicated flinging patterns, sometimes travelling across entire chambers in one leap.

In the Central Hub, the door leading to this course is located on the far wall in front. You have to portal to it by placing a portal on the sides of the small alcove the door is situated in, and placing the entry portal on the floor of the main path.

COURSE 02.

MASS AND VELOCITY





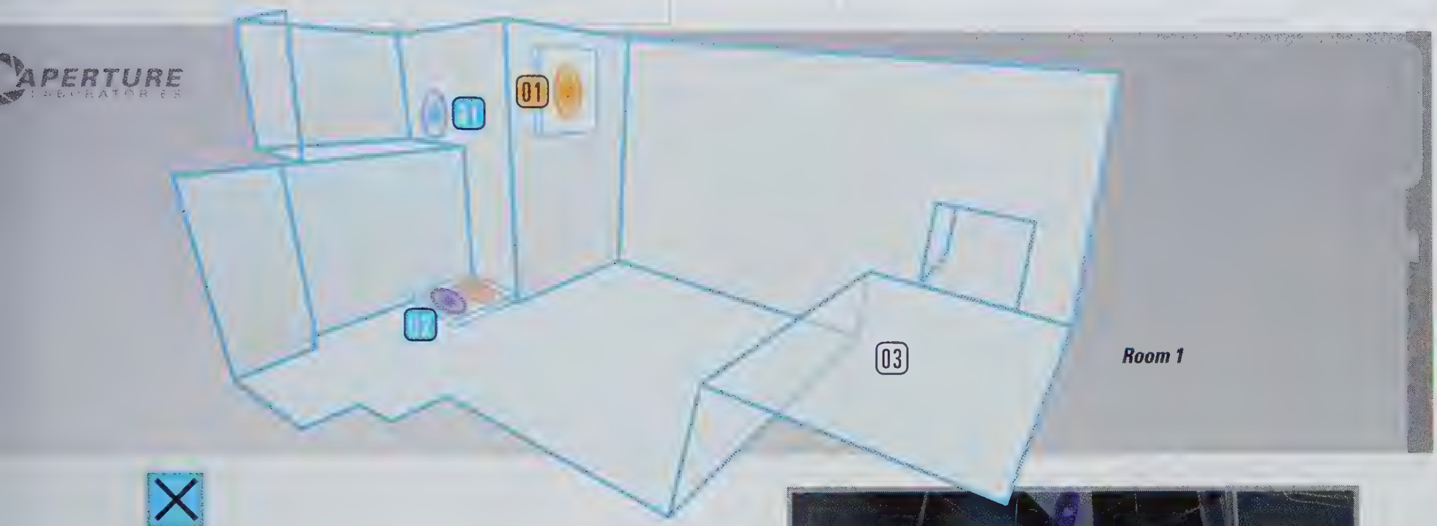
01

01/08

This first chamber is simply designed to re-introduce you to the concept of flinging and integrating the advantages of cooperative play into your fling strategies. Line of sight puzzles are the order of the day here, where using your partner to place exit portals on surfaces you can't see, is usually the solution to the problem.

Room 01 Summary | There are only four portalable surfaces in this room and the players are required to use them to reach the high ledge on the right-hand side of the room which leads to the next area. A pair of flings will be required to get there.

07_077



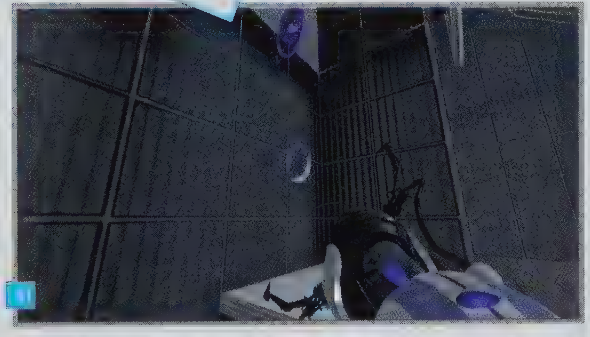
Room 1

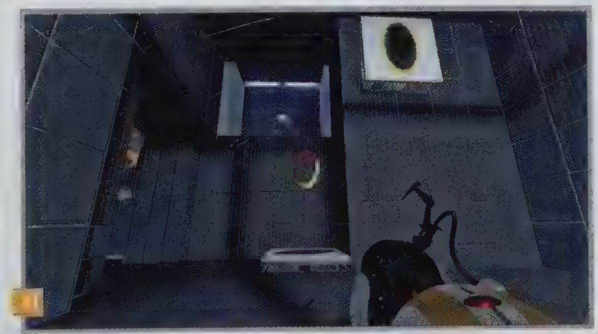
01 Place a portal on the floor, and then place another portal on either of the surfaces in the small alcove, so that you can step through and reach the ledge in the alcove.

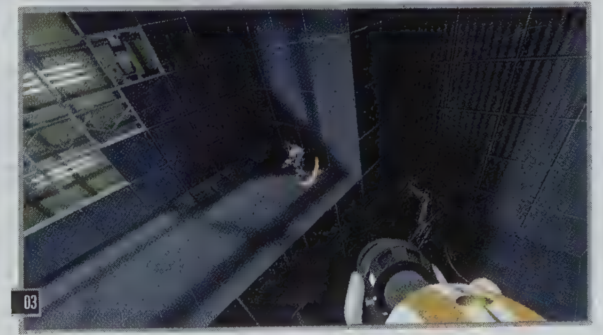
01 Place your first portal on the floor after Blue has made it up to the alcove and then place your exit portal on the surface up high just past it.

02 Drop down into the portal on the floor so that you are flung out of the one up high, easily making it across to the exit area.

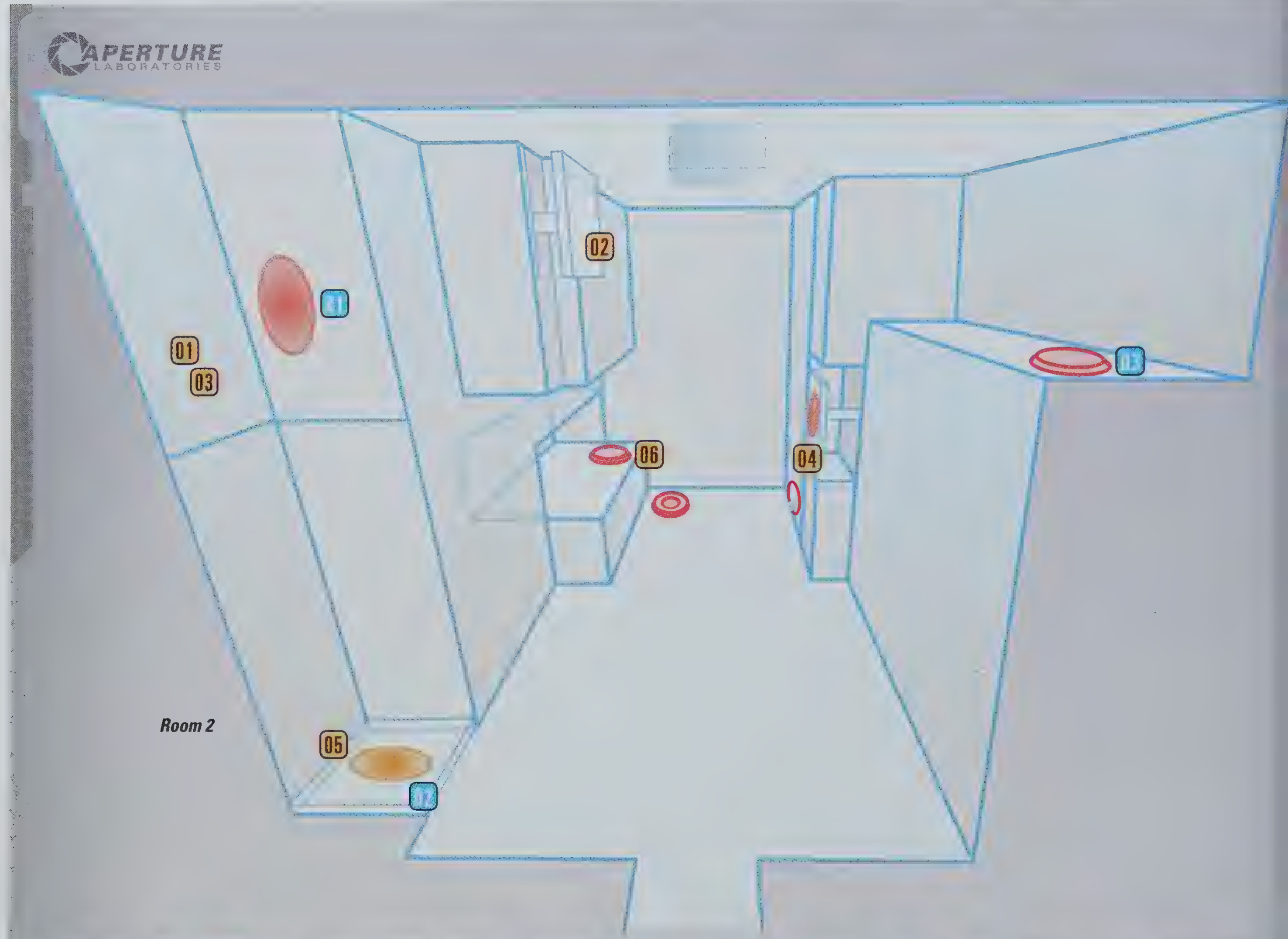
03 Once Blue has made it across, the same steps should be used to get Orange up to the ledge, with Blue setting up the fling for him, so that both of you can move to the next area.







Room 02 Summary | In this room there is a large Edgeless Cube dispenser which requires both players to be standing on buttons in order to activate it. You will need to fling to both button locations, which can be done using the various portalable panels on the walls.


APERTURE LABORATORIES
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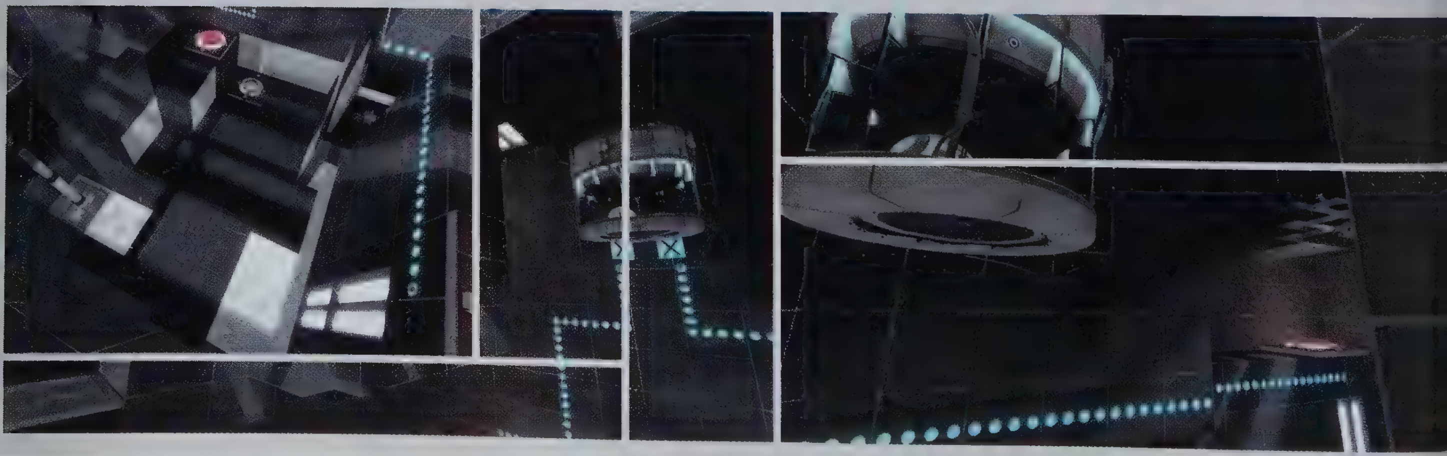


Room 2

01 Walk into Orange's ground portal to get to the high area.

02 Once these portals are in position, drop down into the portal below the raised platform so that you can get flung onto the ledge with the button.

03 Both players should then step on the buttons to trigger the dispenser and then drop down so that one player can pick up the Edgeless Cube and put it into the receptacle to open the exit door.

01 As you enter the room there is a raised platform up high with a portalable surface next to it, place one of your portals there and then another one on one of the surfaces at ground level.

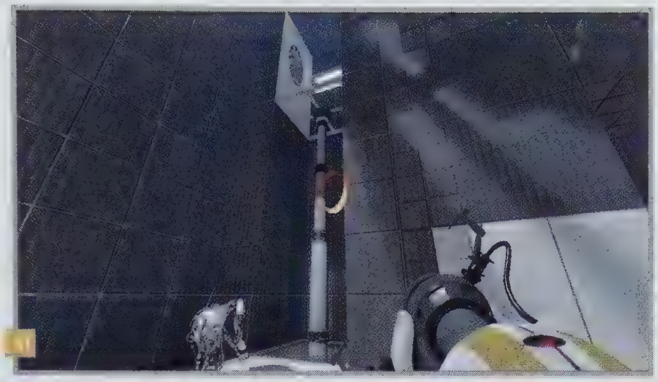
02 Move your portal from the high area to the surface opposite the ledge with the first button.

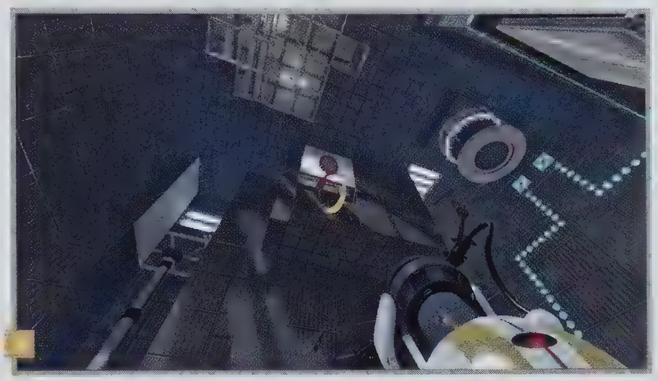
03 Once Blue is over, move your portal back onto the surface in the high area to get up there.

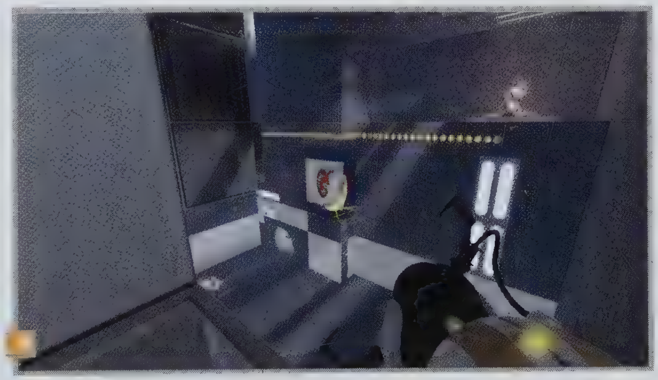
04 Once you are on the raised platform move your exit portal again (leaving the one on the floor where it is) onto the surface in the middle of the wall.

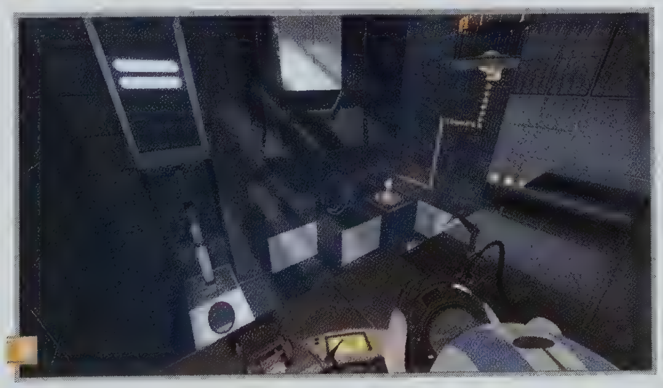
05 Once both portals are in position, drop down so that you are flung through the portals and onto the other ledge with the final button.

06 Both players should then step on the buttons to trigger the dispenser and then drop down so that one player can pick up the Edgeless Cube and put it into the receptacle to open the exit door.









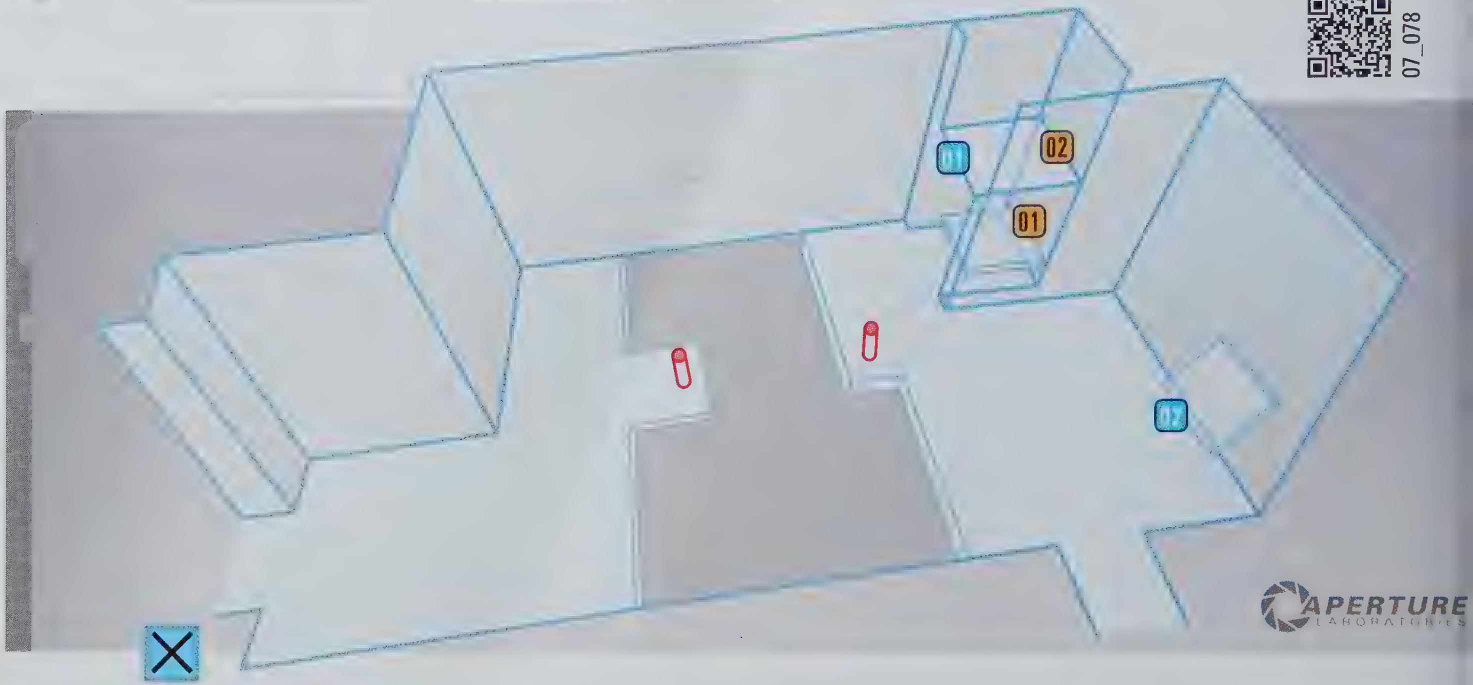
02

02/08

This is the first time in which you will need to use an important technique, the Infinite Fling. The chamber is designed for you to master it and give an example of its advantages and disadvantages.

Room 01 Summary | There is a moat in the middle of this room which players must make their way across in order to reach the exit. The key obstacle to overcome here is being able to generate enough momentum to fling across the moat, having someone available to press the switch to retract the panels on the wall, and being able to get both players across. The small alcove should be used to create the fling.

07_078

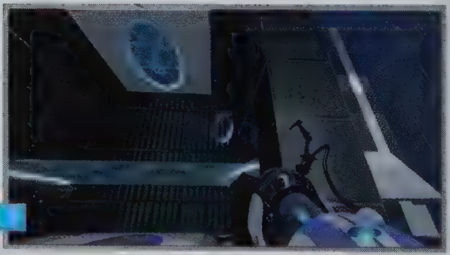


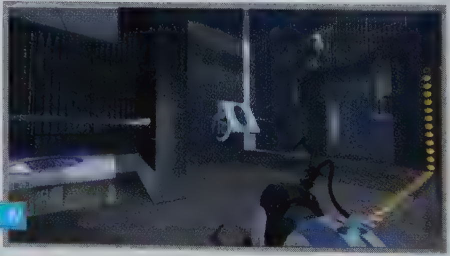
01 Place a portal on the top and bottom surfaces in the alcove.

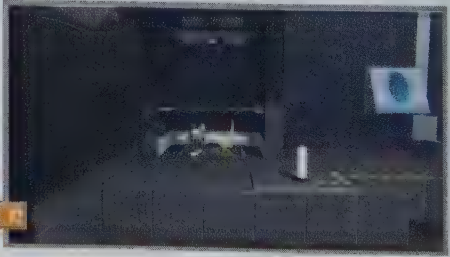
01 Step into the alcove so that you begin your Infinite Fling, falling constantly through the two portals and building speed.

02 Once Orange has built enough speed, press the button to retract the panels, and then reposition the portal from the ceiling of the alcove so that it is on the diagonal surface. This should cause Orange to be flung across the moat safely, now that the panels are not there to block his flight path.

02 Once you have reached the other side; set up the Infinite Fling in the alcove so that Blue can drop into it to build up momentum. Once he is traveling fast enough, you will need to press the button to retract the panels again and then move the ceiling portal to the diagonal surface so that he is flung across the moat.







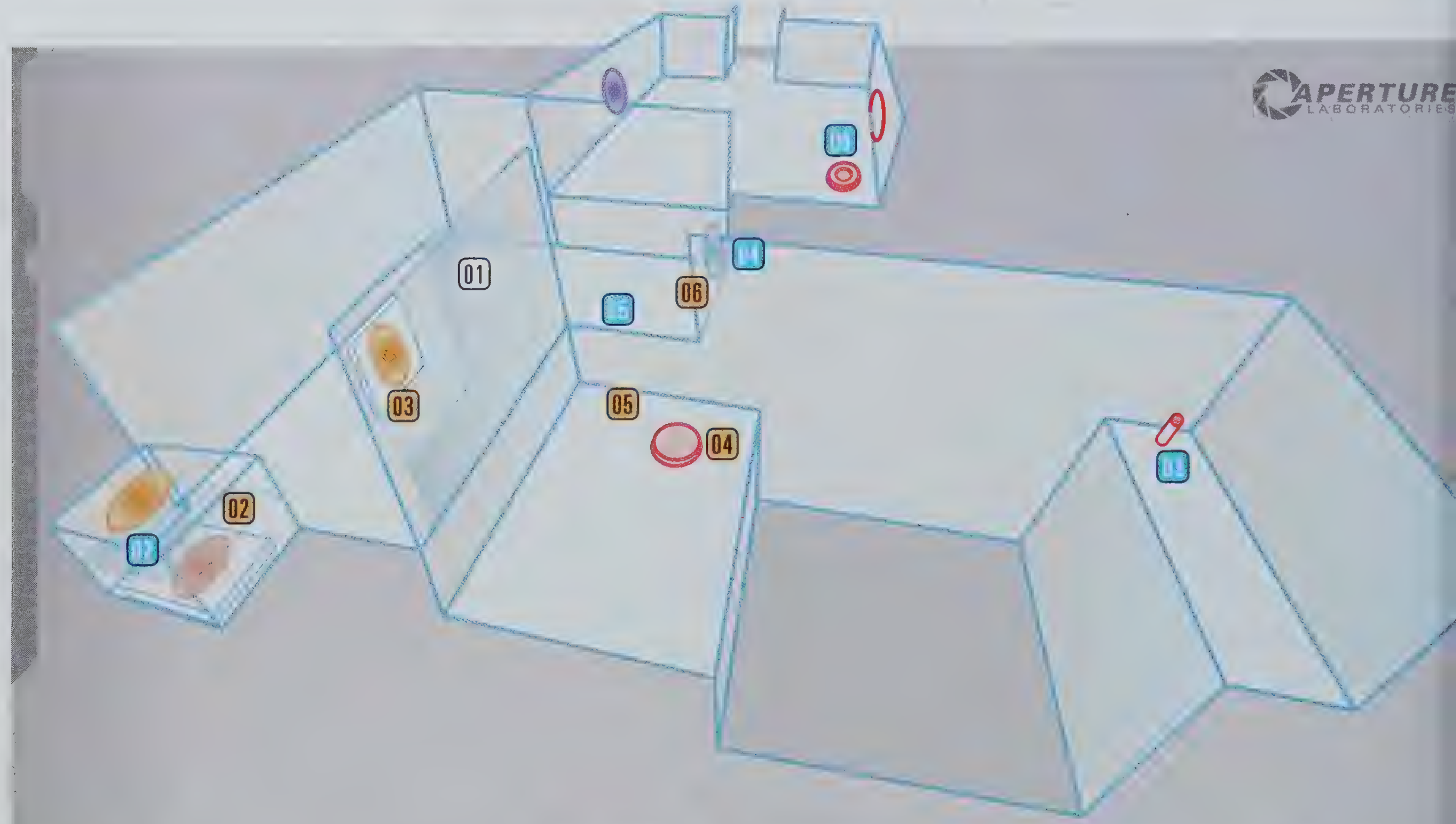
03

03/08

This chamber once again emphasizes the usefulness of the Infinite Fling and setting up cooperative flings. It also integrates some basic teamwork elements from the first course, such as passing objects.

Room 01 Summary | The aim of this room is for players to safely retrieve an Edgeless Cube, without it falling into the moat or being destroyed by the Emancipation Grill and then get it back to the receptacle. The Infinite Fling must be used again to get across.

07_079



01 To begin with, both players should continue into the room and drop down to the level below.

02 Set up a portal on the floor and ceiling on the alcove to set up an Infinite Fling.

02 Step into it to start building up momentum.

03 Once enough speed has been built up, reposition the portal you have on the ceiling in the alcove to the surface directly above the stairs. If done correctly, this will cause Blue to be flung safely across the moat.

04 Once Blue is on the other side; drop down and step on the large button so that the panels move into place to cover the moat.

03 Press the switch after your fling to activate the dispenser and then pick up and carry the Edgeless Cube back over to Orange. Drop off the cube to him before going up the stairs through the Emancipation Grill.

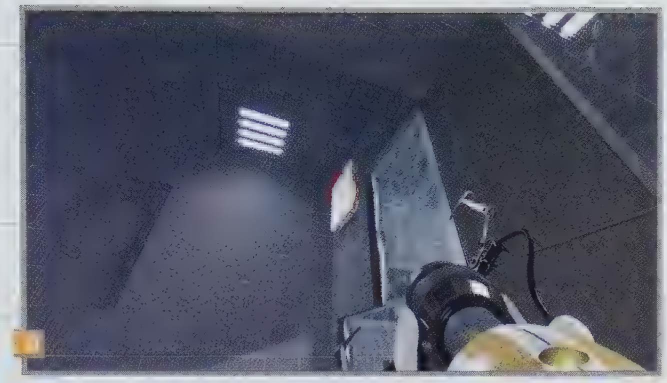
04 After passing through the grill, place a portal somewhere on the wall here and then one on the level above near the exit.

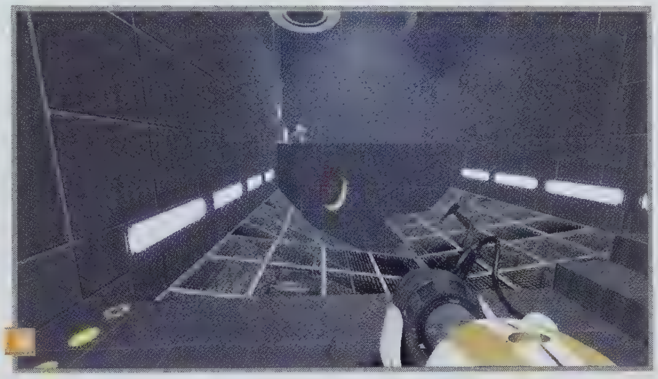
05 After placing the portals, walk towards the ledge where Orange is waiting with the cube on the level below.

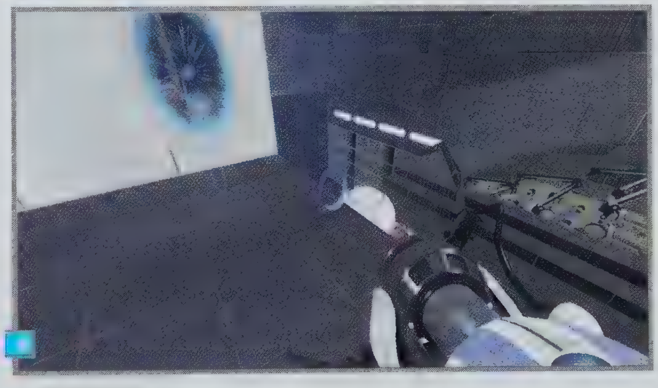
05 Walk as close as possible to the ledge under Blue, look up and pass the Edgeless Cube to him.

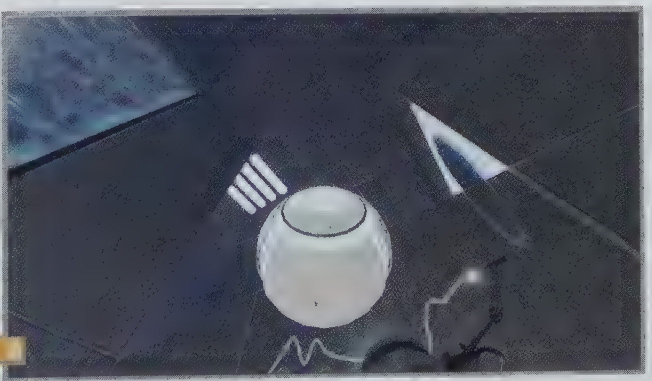
05 Walk through your previously placed portals, placing the cube in the receptacle.

06 Follow Blue through the portals to get to the exit.









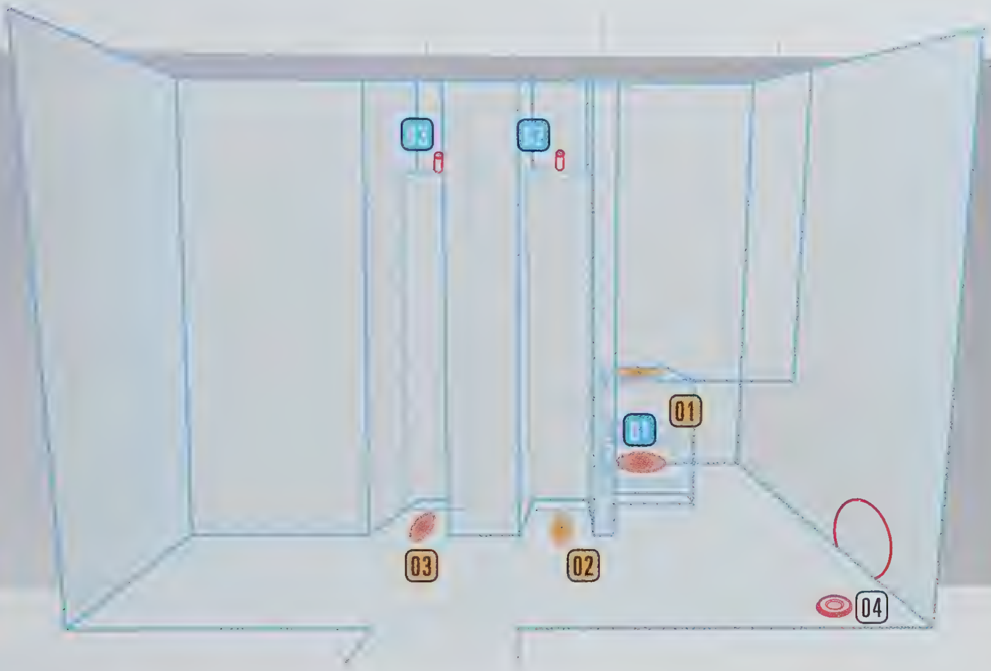
04

04/08

Once again, this chamber involves more use of the Infinite Fling, combined with some puzzle elements you were introduced to in the first course. Namely, pressing buttons in quick succession, fast enough so that they trigger another event. Some accurate, quick movements will be required by both players.

07_080

Room 01 Summary | The two buttons halfway up the back wall must be pressed very quickly one after the other. It is impossible for two players to get up at the same time, so one player must press both of them using some creative flinging and the Infinite Fling.



01 Head to the alcove and get portals into position on the floor and ceiling to set up an Infinite Fling.

01 Step into the alcove and initiate the loop, building up speed.

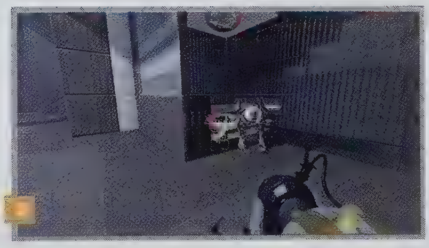
02 Reposition your portal from the ceiling in the alcove to the floor beneath one of the buttons.

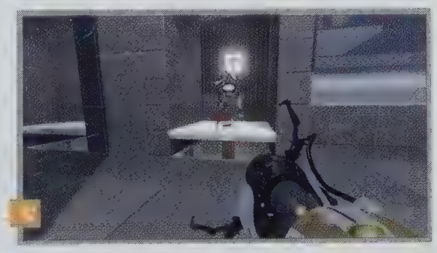
02 While you are flung upwards align yourself so that you can press the button on the back wall as you pass by it.

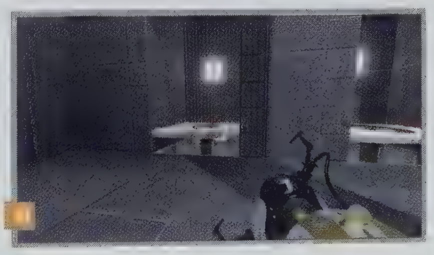
03 While Blue is in the air pressing the first button; reposition your portal from the floor of the alcove, to the surface beneath the second button.

03 If done correctly, this should allow you to fall back down through the portal after pressing the first button, and then get flung up out of the other portal so that you can press the second button quick enough to trigger the Edgeless Safety Cube dispenser.

04 Three Edgeless Cubes will be released, and one of the players should pick one up and place it into the receptacle to open the exit door.







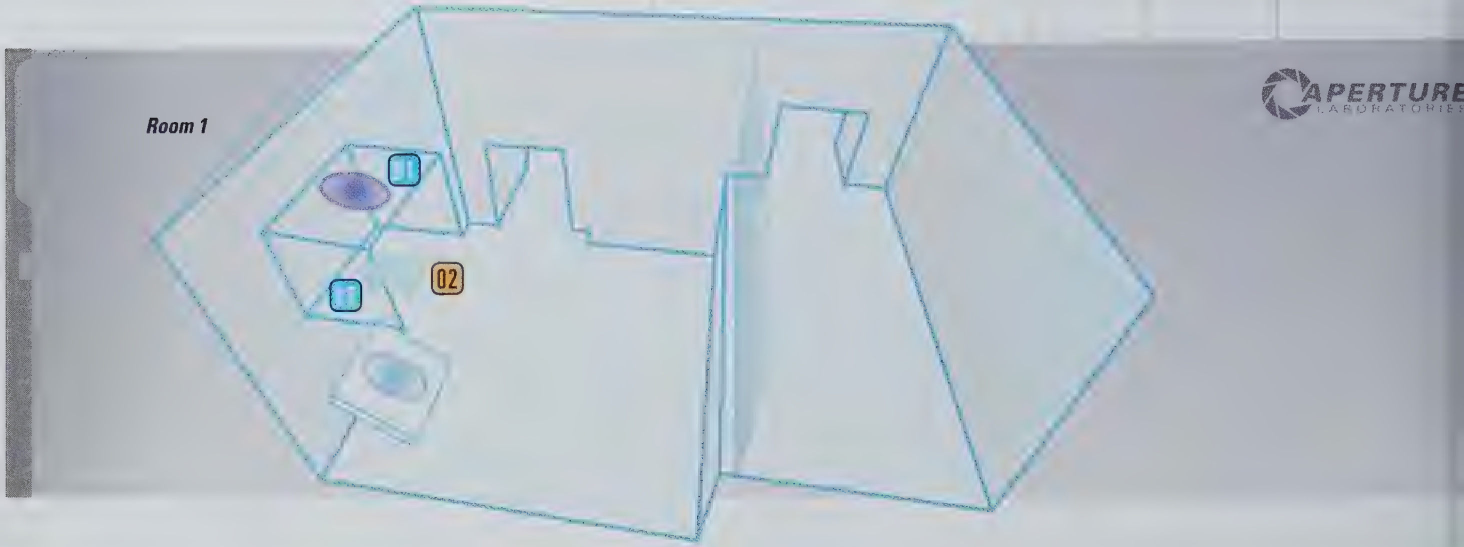
05

05/08

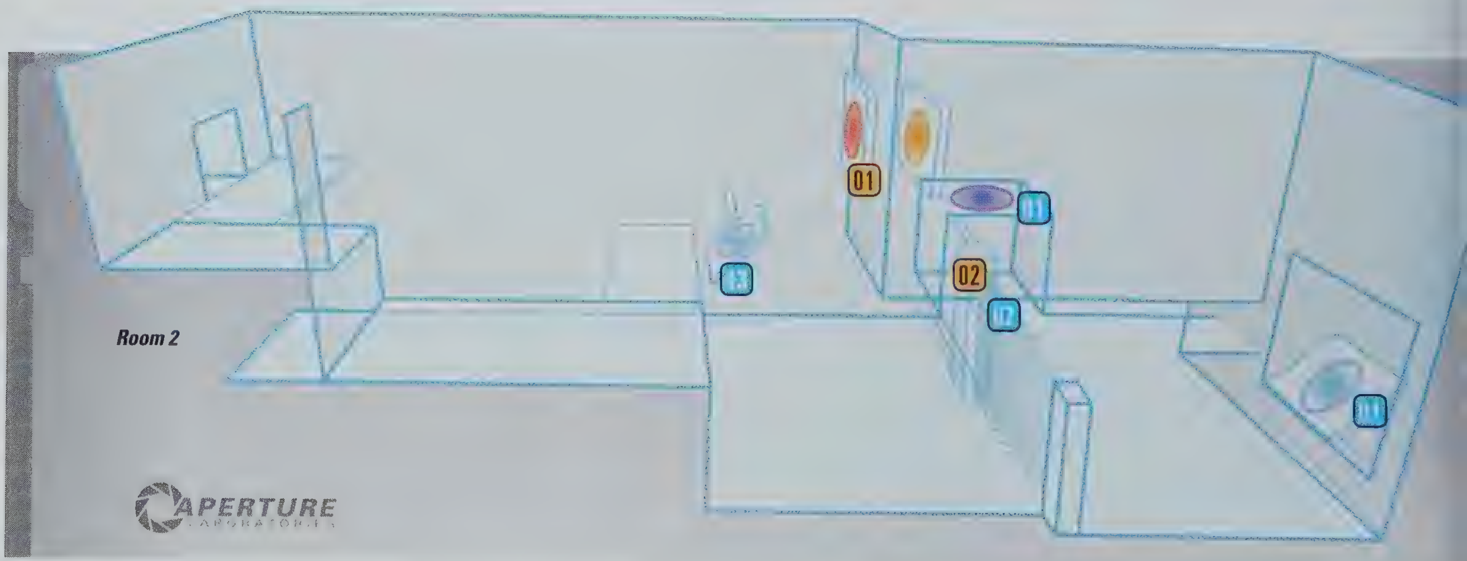
07_081

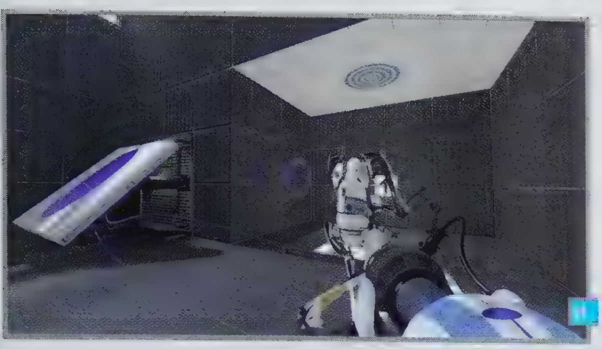
Welcome to cooperative Aerial Faith Plate puzzles. This simple chamber is only designed to introduce you to them and how transfer the momentum you gain from them through your portals to propel yourself further. The second and third rooms will require substantial planning, due to the Emancipation Grills that will erase your portals. Remember to re-use existing portals at every opportunity, and that only the player passing through the grill will have their portals erased, while their partner's will remain intact.

Room 01 Summary | This first room is only comprised of a small alcove that houses an Aerial Faith Plate and an angled portalable surface. You must redirect the momentum generated by the Aerial Faith Plate.



Room 02 Summary | You must use the Faith Plate to create flings off of the various angled surfaces in this room. The portals used must be placed carefully as the Emancipation Grill will erase them if you walk through it.



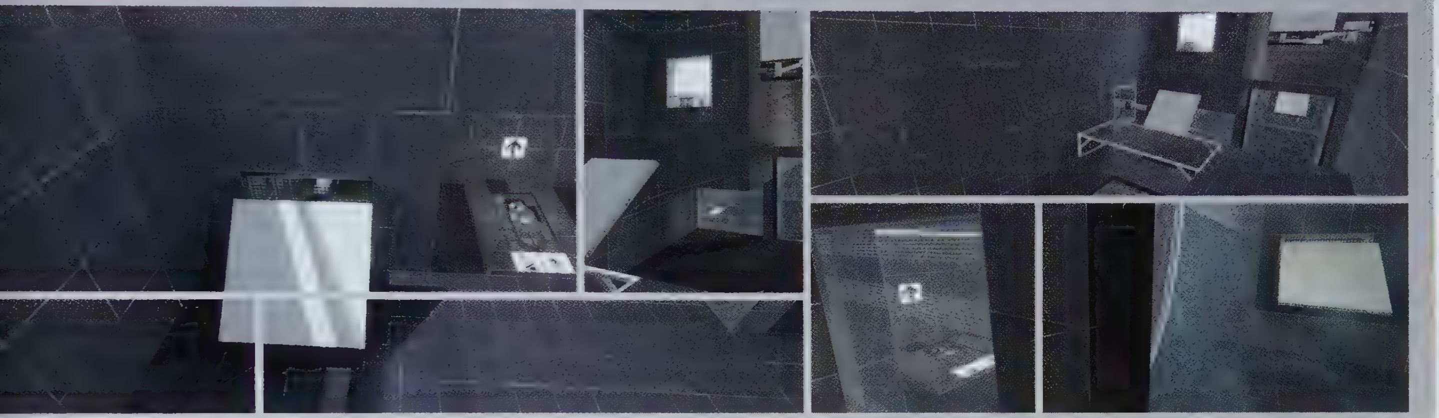


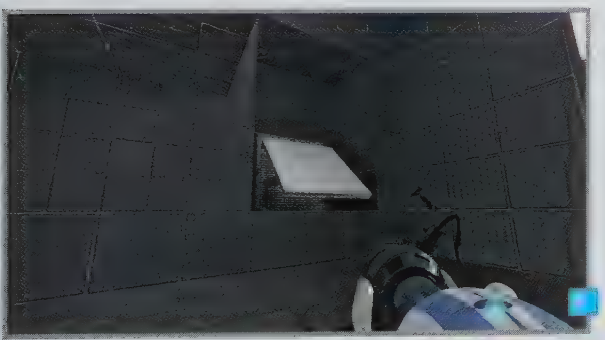
Room 1

01 Place a portal above the Aerial Faith Plate in the small alcove, and an exit portal on the angled portalable surface.

01 Step on the Faith Plate to be launched to the other side using Blue's portals.

02 Step onto the Faith Plate and go to the next room.



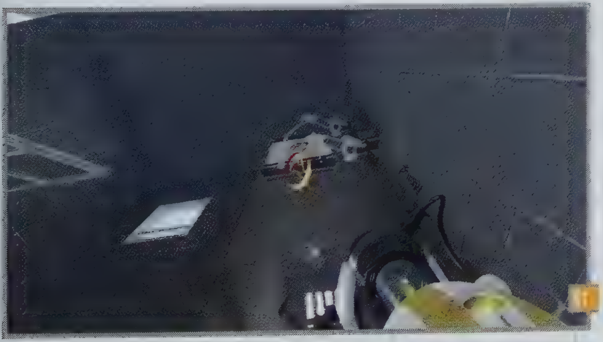


Room 2

01 You must first place a portal above the Aerial Faith Plate and one on the angled portalable wall to the right, as usual.

01 Walk through the Emancipation Grill and fire a portal on both sides of the portalable panel that is suspended in mid-air over the Grill.

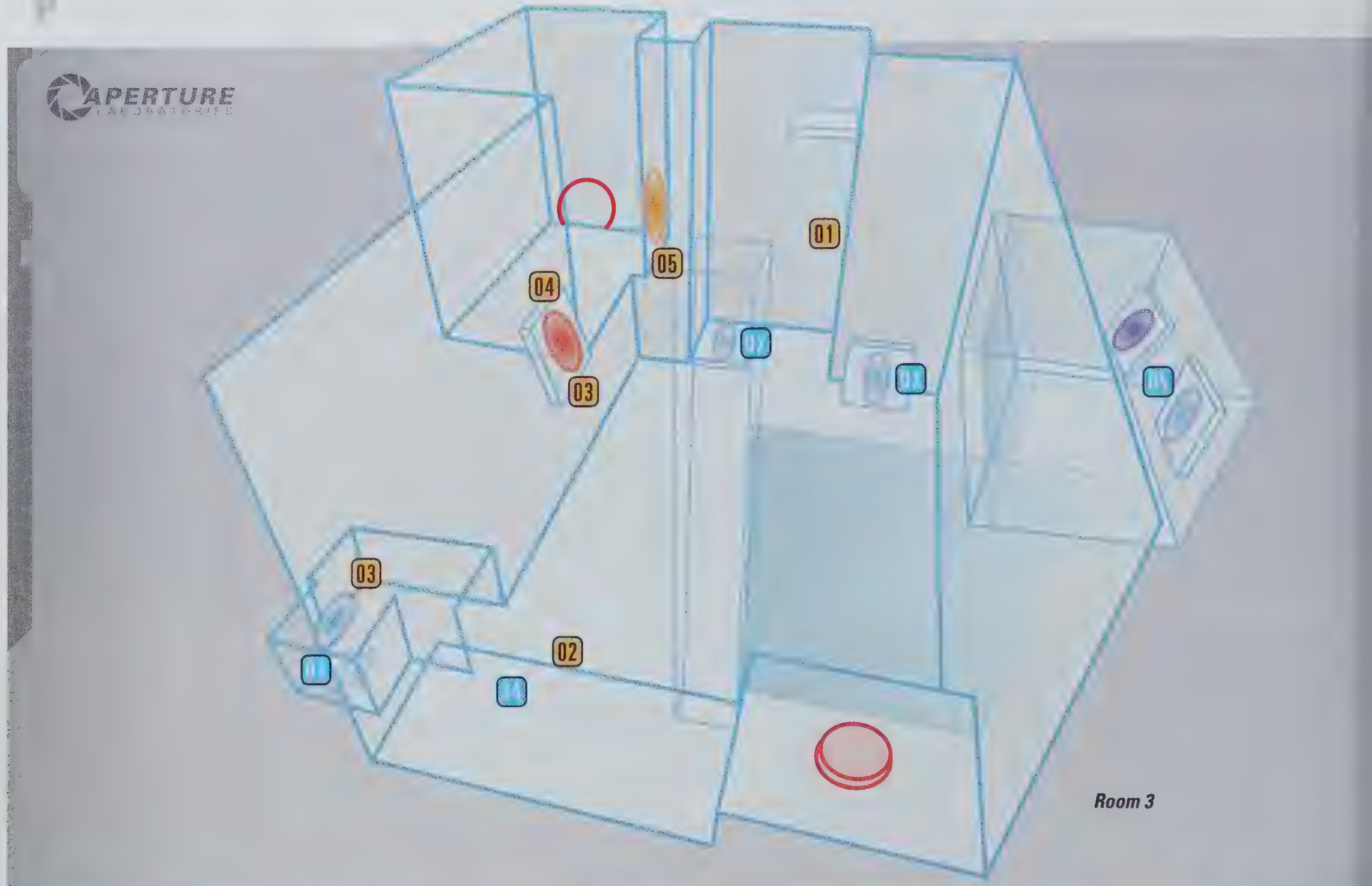
02 Once this is done, you can step onto the Aerial Faith Plate and fling yourself through the portals just placed by Orange onto the upper area.



03 On the upper area, you just need to reposition your exit portal onto the angled surface. Be sure not to move the portal that is above the Aerial Faith Plate, but the other one. Once this is done, just walk through this newly placed portal to launch yourself to the highest level.

02 You can now proceed back through the Emancipation Grill and step onto the Aerial Faith Plate, also flinging you onto the high level. Now proceed to the exit.

Room 03 Summary | This area once again employs the Aerial Faith Plate portal method of creating momentum to fling you. To be able to fling to the exit you must reveal the extra portalable panels in the center of the room, which is why you need the cube. The final ledge where the exit door is located, will require a four portal fling.


APERTURE
LABORATORIES
01
05
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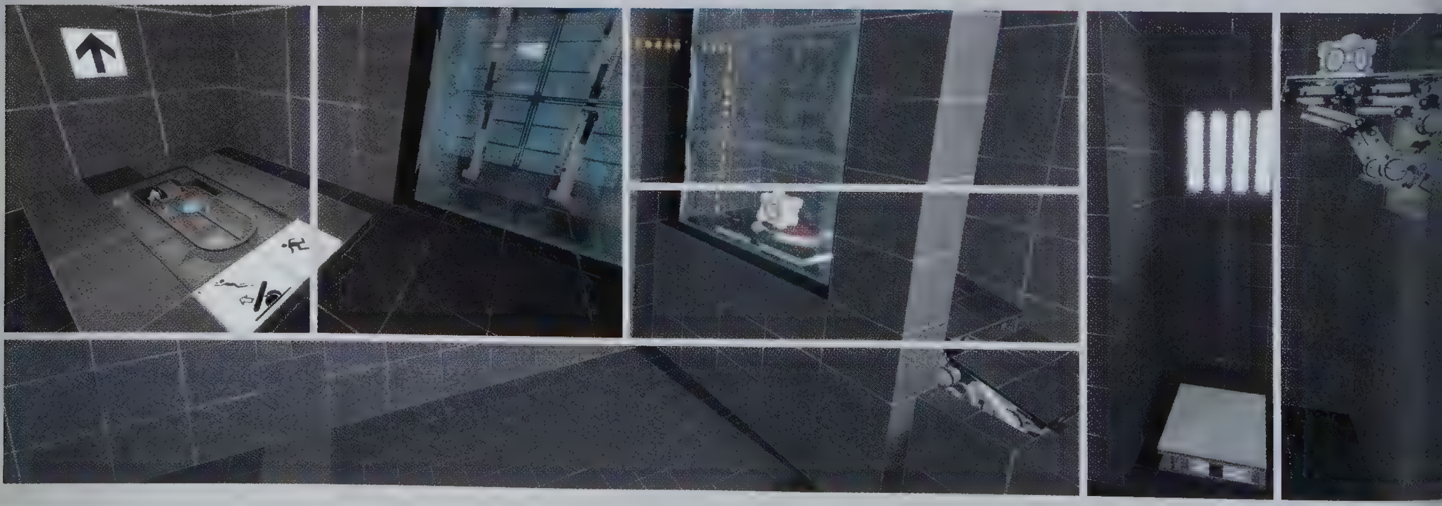
Room 3



Room 3

01 First, fire a portal over the Aerial Faith Plate in the alcove to the right. Then proceed into the large room.

02 On the far end is a surface on the floor under a cube, place your exit portal here.

01 Step on the Aerial Faith Plate. When you are flung up, grab the cube on the way up, and then move into the room to avoid dropping back into the portal.

03 Once Orange has the cube, place a new exit portal on the angled surface, and then step on the Faith Plate to be sent through the grill.

02 Bring the cube to the ledge that has the Emancipation Grill that Blue just jumped through. To the right of that ledge, the floor lowers and you can reach up to pass the cube to Blue.

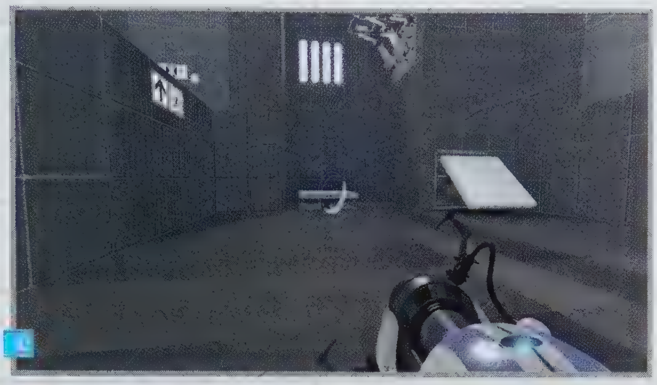
04 Walk to the edge here and grab the cube, then place it on the switch.

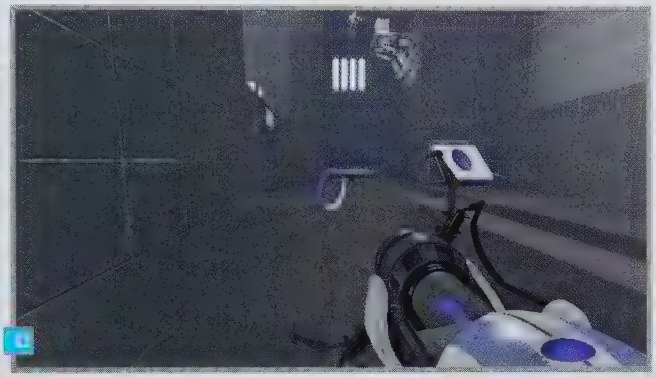
03 This will cause 2 new portalable surfaces to appear in the center of the middle wall. Now place a portal above the faith plate, and another on the angled surface that is opposite these two newly revealed portalable surfaces.

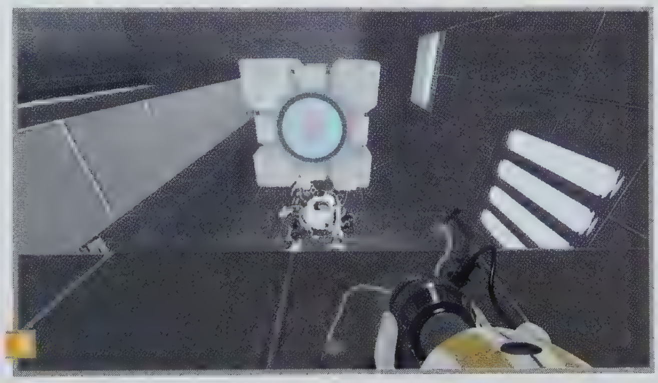
05 You can now step onto the Faith Plate and launch yourself to this new area. Now place portals onto these 2 surfaces, one on each.

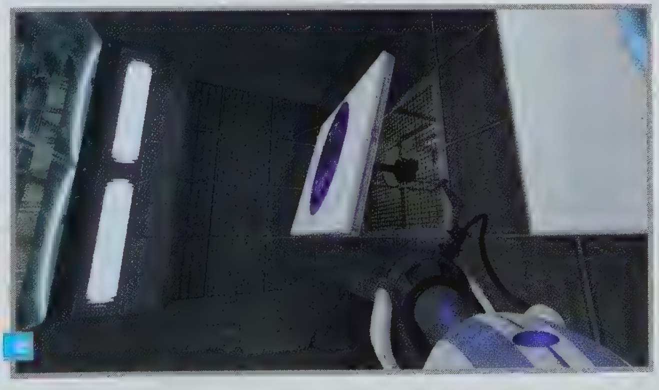
04 You can now step on the Aerial Faith Plate, and should be flung into and out of the 2 portals just placed by Blue, and land on the area near the exit.

05 Now you can just place a new portal on the one portalable surface that is here and the other somewhere on a floor surface that can be easily reached by Blue. Blue can pass through and finish the chamber.







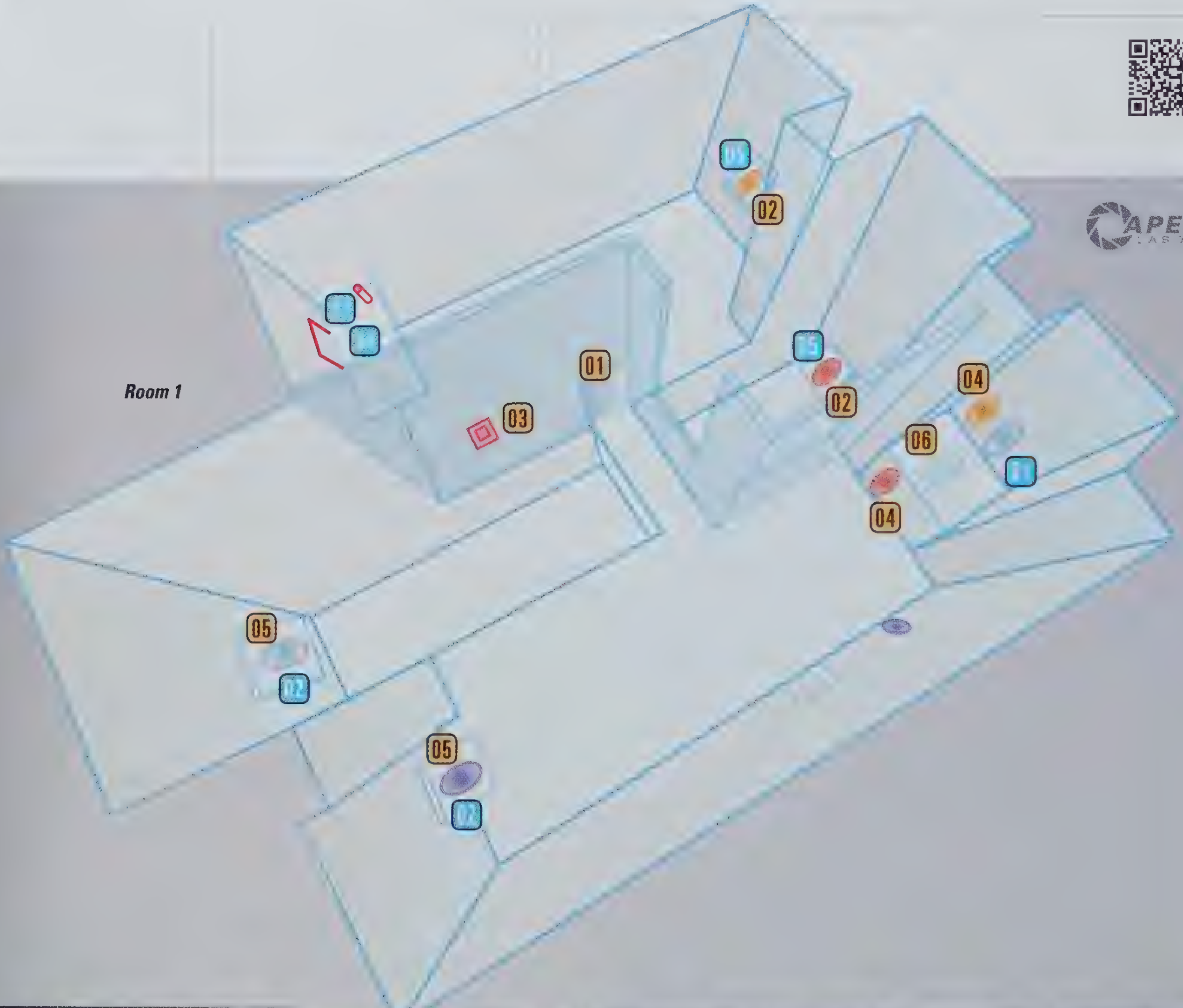


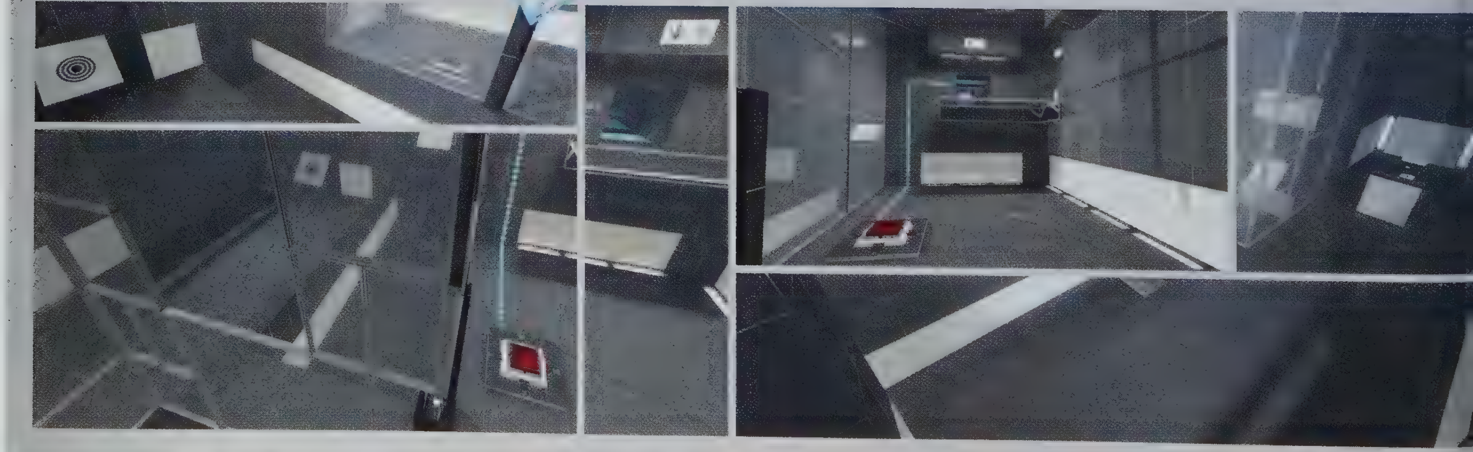
06

There's more fun to be had with Aerial Faith Plates in this chamber. The first room contains the pinnacle of team based flinging, with all four portals being used for a single fling across the room. The second room is more timing based, with a flight path arranged for you thanks to the meticulous placement of Faith Plates. This room may take some experimentation for you to discover the correct timing, but be sure to re-attempt it once you have the timing down to get the Iron Grip Achievement.

Room 01 Summary | This area contains more momentum based challenges, with players having to fling through four portals across the entire room to reach the exit. Four angled surfaces must be flung through in each corner of the room in order to reach the exit.

07_082





Room 1

01 As you enter this area, portal to the alcove to the top right, which houses the Aerial Faith Plate.

02 Once there, look out into the room and place your two portals on the two angled surfaces at the end of the room. You may have to move around to be able to fire past the glass, if so, be careful not to prematurely step onto the Aerial Faith Plate.

01 Move over to the other side of the room, passing through the Emancipation Grill and the central divide.

02 From this side of the room, fire your two portals on the angled surfaces at the back of the room. This will complete the portal configuration and allow you to fling all the way to the platform at the top of this area.

03 You can now step on the Aerial Faith Plate, and fling through all the portals onto the aforementioned platform.

04 Press the button here, and the cube dispenser will dispense the cube onto the Faith Plate, launching the cube and forcing it to take the same path through the portals, flinging it onto the platform that you are standing on. Pick it up, and drop it down to Orange waiting down below.

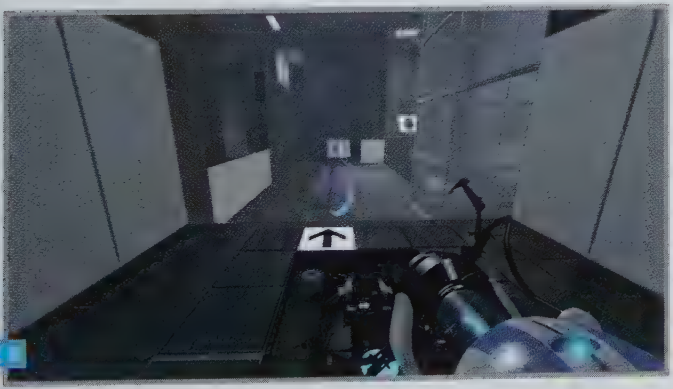
03 Pick up and place the cube into the receptacle thus opening the exit.

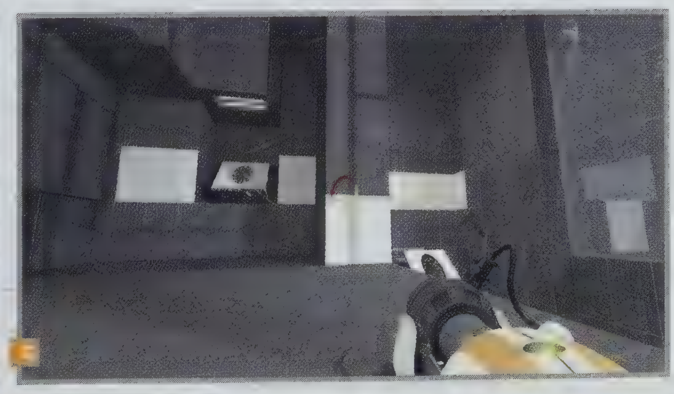
04 Now you must also get up to that raised platform, so cross the central divide back to the side of the room, passing through the Emancipation Grill. Portal yourself up to the alcove just like you did initially.

05 Place your portals in the same configuration as Blue did on the two far angled portalable surfaces.

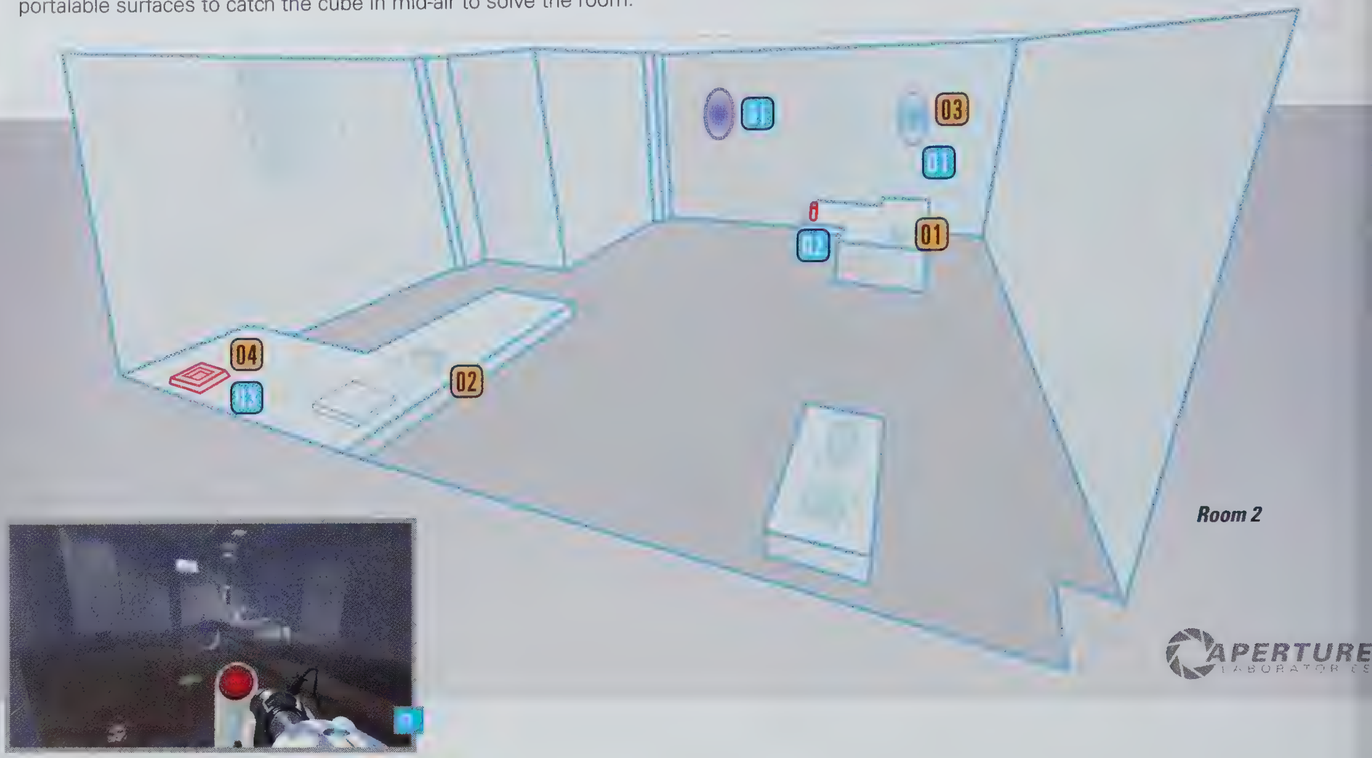
05 You must set up the other two portals from your high vantage point on the raised platform. Place them in the same places as before, like Orange did previously.

06 When ready, step on the Aerial Faith Plate, and reach the upper platform. Then proceed to the end of the area.





Room 02 Summary | The starting platform houses the button that releases the cube, but the cube dispenser is above the Faith Plate on the far platform, and when the cube is released it will be launched via the Faith Plate into the goo. You must use the Faith Plates and portalable surfaces to catch the cube in mid-air to solve the room.



01 Fire two portals, one on each of the portalable surfaces.

02 Wait for the loop to begin, and then get ready to press the cube dispensing button on the starting platform. This will cause to the cube to drop onto an angled panel and bounce into the corrosive goo. The timing for the button press is around when you have just bounced off the far platforms Aerial Faith Plate, and is heading towards the small Aerial Faith Plate platform in the corner. Press the button when you think you are ready, and grab the cube. There is an achievement available for getting it on the first try and not letting the cube be destroyed.

03 After having grabbed it, the suspended portalable surface will retract, ending your fling loop and allowing you to land safely with the box onto the starting platform. Both players can now simply walk onto the Aerial Faith Plate to bounce over to the other platform, place the cube in the receptacle and complete the chamber.

Room 2

01 Step onto the Aerial Faith Plate on the platform you are standing on. This will bounce you over to the far platform.

02 Once there, step onto the other Aerial Faith Plate to begin a fling loop, where you will constantly pass through portals and bounce off Aerial Faith Plates until you choose to use air control to move out of the path of a plate or portal to stop. The purpose of this loop will soon become apparent.

03 To stop the cube from dropping into the deadly goo, you must grab the cube in mid-air after it bounces off the angled panel before it lands in the goo. Make sure you are facing into the portal as you are being flung into it, to ensure you are facing the correct direction when you come out of the angled portal to grab the cube.

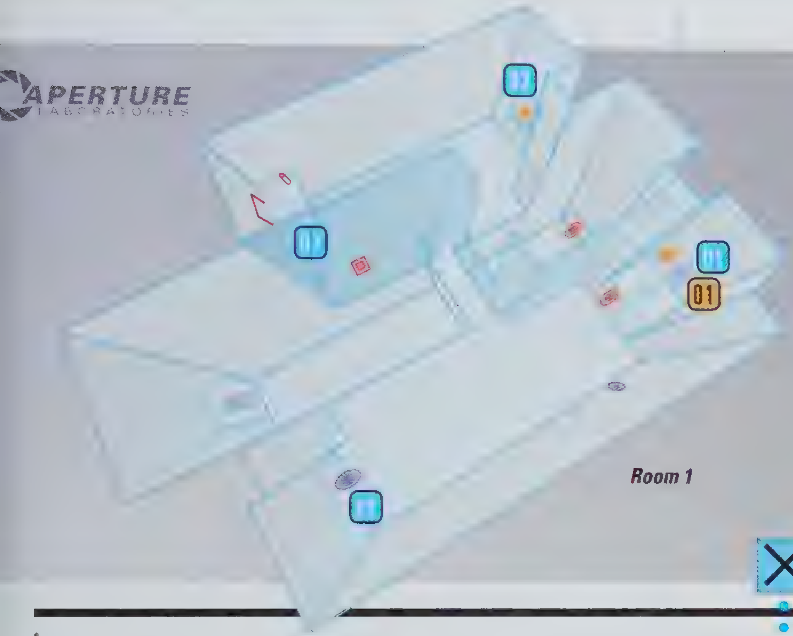
04 After having grabbed it, the suspended portalable surface will retract, ending your fling loop and allowing you to land safely with the box onto the starting platform. Both players can now simply walk onto the Aerial Faith Plate to bounce over to the other platform, place the cube in the receptacle and complete the chamber.

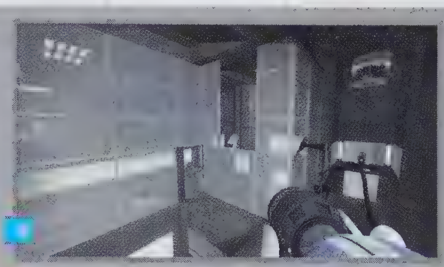
✓

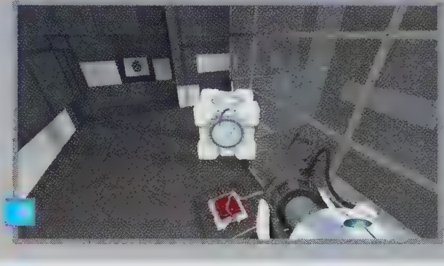
Advanced Solution

The advanced solution for this room is much faster, as it involves only a single fling for both players straight to the exit, and then a fling for the weighted cube, and then finally tossing the cube into the receptacle. Both the single fling and the cube toss are difficult feats of skill to perform and require speed, precision and a good understanding of object physics.

07_083







01 *Portal yourself up to the alcove containing the Faith Plate as usual.*

02 *The following is the key event that will drastically shorten the length of this chamber. First, place your first portal on the angled portalable surface opposite you, as usual. Now, you must fire the second one mid-flight after you step on the Faith Plate. Your target is the angled portalable surface that is opposite the exit platform, on the far side of the room. You will be able to see and target it briefly as you are flying through the air.*

To make the shot, the best method is to have your reticule lined up before you step onto the Faith Plate, so the portalable surface will cross your view naturally and you can just fire your exit portal at the right time. The correct angle to be facing as you step on the faith plate is behind you and to the left, towards the corner that the portalable surface actually is in. Once you are ready, step on the Faith Plate, and try to land the shot. If you did it correctly, you will be flung straight onto the exit platform. Orange should just follow you through.

03 *Once you have made it to the exit platform, you will need the cube that will be dropped into the receptacle. Press the button to dispense, and it will be flung onto your platform. Grab it, and try to toss it into the receptacle down below, without dropping off the platform. This is arguably harder than the actual shortcut fling.*

The correct method to do this is twofold. First, ensure the cube is oriented the correct way when you pick it up. It should be flat, not held diagonally or at an angle. Tossing the cube to have it settle into the receptacle is tough. Face the edge of the platform, looking towards the receptacle. Then move toward the receptacle and when you get to the very edge of the platform, release the cube. Thrust it just far enough so that it settles into the receptacle. Try not to move your view, as this will launch the cube too far and at an odd angle, meaning even if you do get it into the receptacle, it will probably just bounce out. Once you have made the throw, head into the exit portal, complete with a well deserved feeling of accomplishment.

Room 1

01 *Follow Blue up to this alcove but be careful not to step onto the Faith Plate prematurely.*

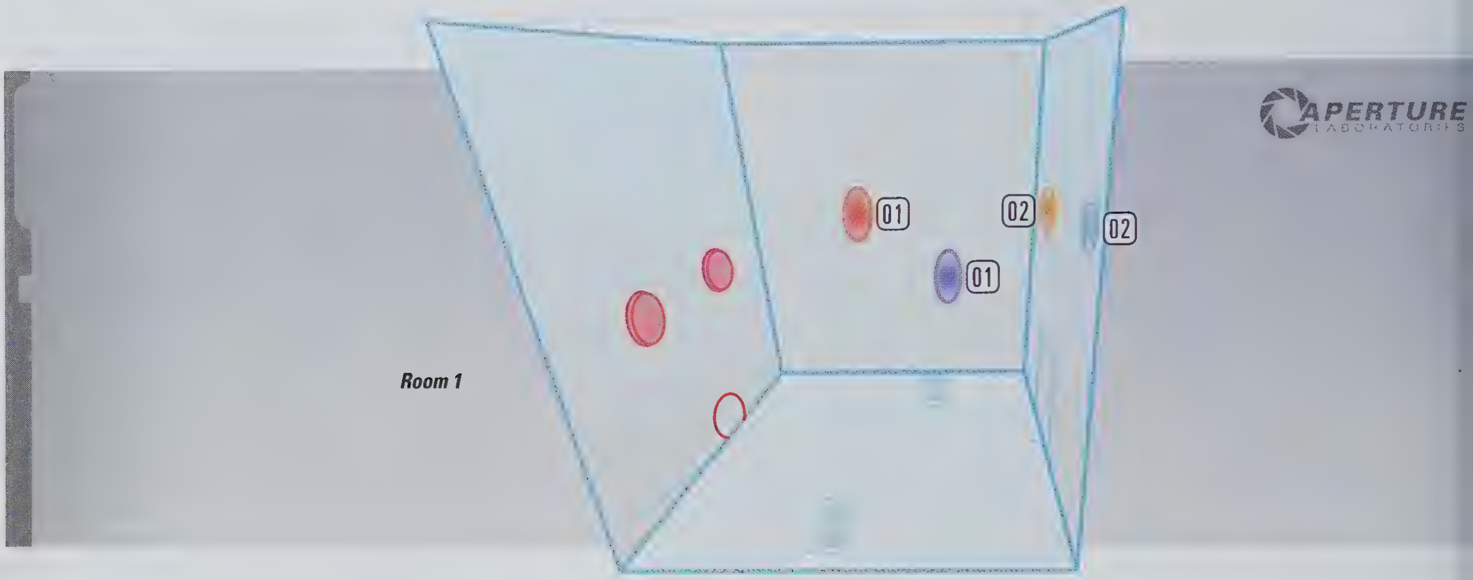
07

07/08

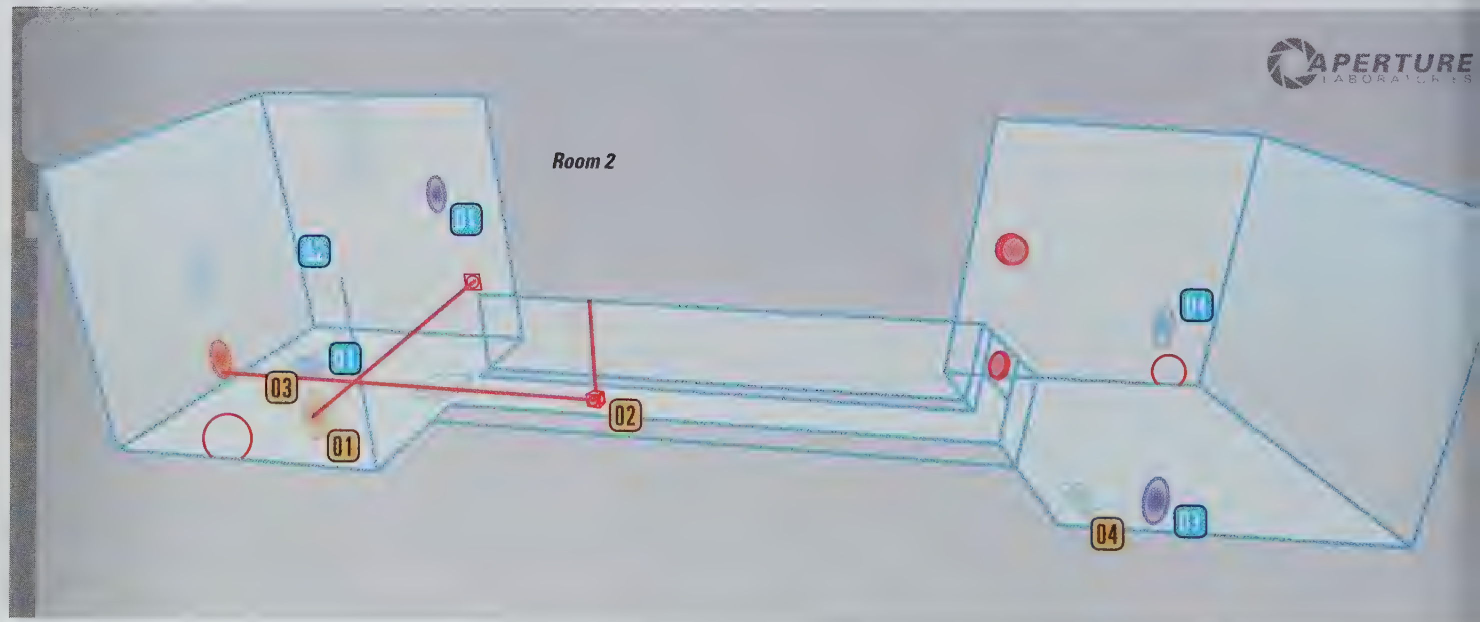
This chamber will present you with a timed crusher trap that will add some stress to your laser redirecting endeavors. The crusher trap follows a set pattern, so don't do anything until you're comfortable. The crusher trap is the centerpiece of the second room and is what separates the two halves of the puzzle. The second half of the room is another timing based puzzle, with many ways to attempt to solve it. Remember that elements you used previously in the chamber may be re-used again to solve puzzles later in the room.

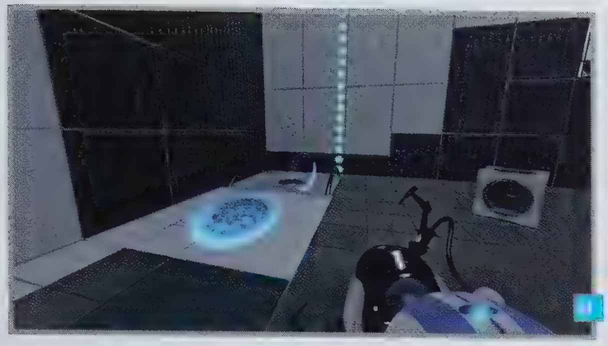
07_084

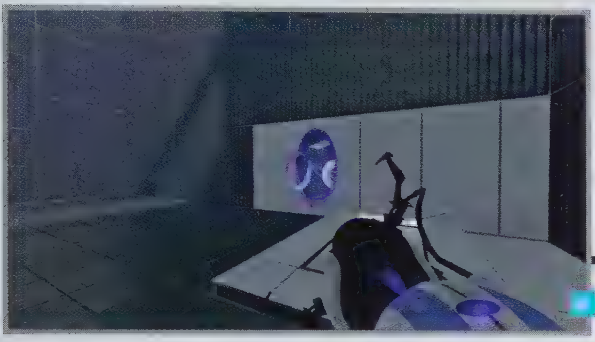
Room 01 Summary | This small room is simple to get through. It contains 2 Aerial Faith Plates, and a few high walls with portalable surfaces along them. The aim is to hit the 2 large buttons on the walls at roughly the same time to open the door.



Room 02 Summary | The goal of the first part of this room is to disable the crusher trap which activates when you enter the corridor. You must fling into the button to deactivate it. The room at the end of the corridor has a button on the wall that must be pressed to open the door, but it will only open the door for a few seconds.







Room 1

01 The left and right walls have targets painted on the correct places to put your portals, so place your portal on the left side while Orange places his on the right side.

02 Place your exit portal on the back wall, opposite the large button and at the same height of the first portal. The correct spot is indicated on the portalable surface by a small section that is made up of smaller tiles. Do the same for the right side. Once the portals are set up, both players should step onto the Aerial Faith Plates at the same time to hit the buttons simultaneously. Open the door and proceed to the next area.

Room 2

01 Put your first portal on the portalable surface that is opposite the Thermal Beam receptacle. Place the other portal on the wall opposite the entrance to the corridor, this area is marked with some small gray tiles mixed in with the usual white ones.

01 You need to place your portals now. The first one must be placed on the floor right next to the lift; this is the one you will be jumping through. The exit portal should be placed on the surface opposite the Aerial Faith Plate; the portalable surface will be marked with gray tiles again. Then stand on the lift.

02 Now you must pick up the Discouragement Redirection Cube and walk into the trap corridor to deflect the Thermal Beam into the portal you placed earlier. When deflecting the Thermal Beam, be careful not to get crushed by the trap. The crusher trap will begin the moment you enter the corridor. Use the beam to raise the lift.

02 When the lift has raised high enough, jump into your portal to fling into the Faith Plate, subsequently hitting the button that disables the crusher.

03 After the trap has been disabled, you can head into the small room and move your exit portal from the wall opposite the Faith Plate to the portalable surface right next to the Aerial Faith Plate in this room.

03 Go through Blue's floor portal, bringing the Discouragement Redirection Cube with you into the small room. In this room, there is a large button on the wall that must be hit to open the door. The door will only open for a second.

04 Once you are in the room, leave the portal next to the Faith Plate where it is, and move your other portal to the portalable surface just above the door leading to the exit, and then walk over to the door.

04 Now you can just drop the cube onto the Faith Plate and immediately step through the portal next to the plate to come out right next to the door. The cube should launch off the Faith Plate and hit the button, giving you more than enough time to reach the door.

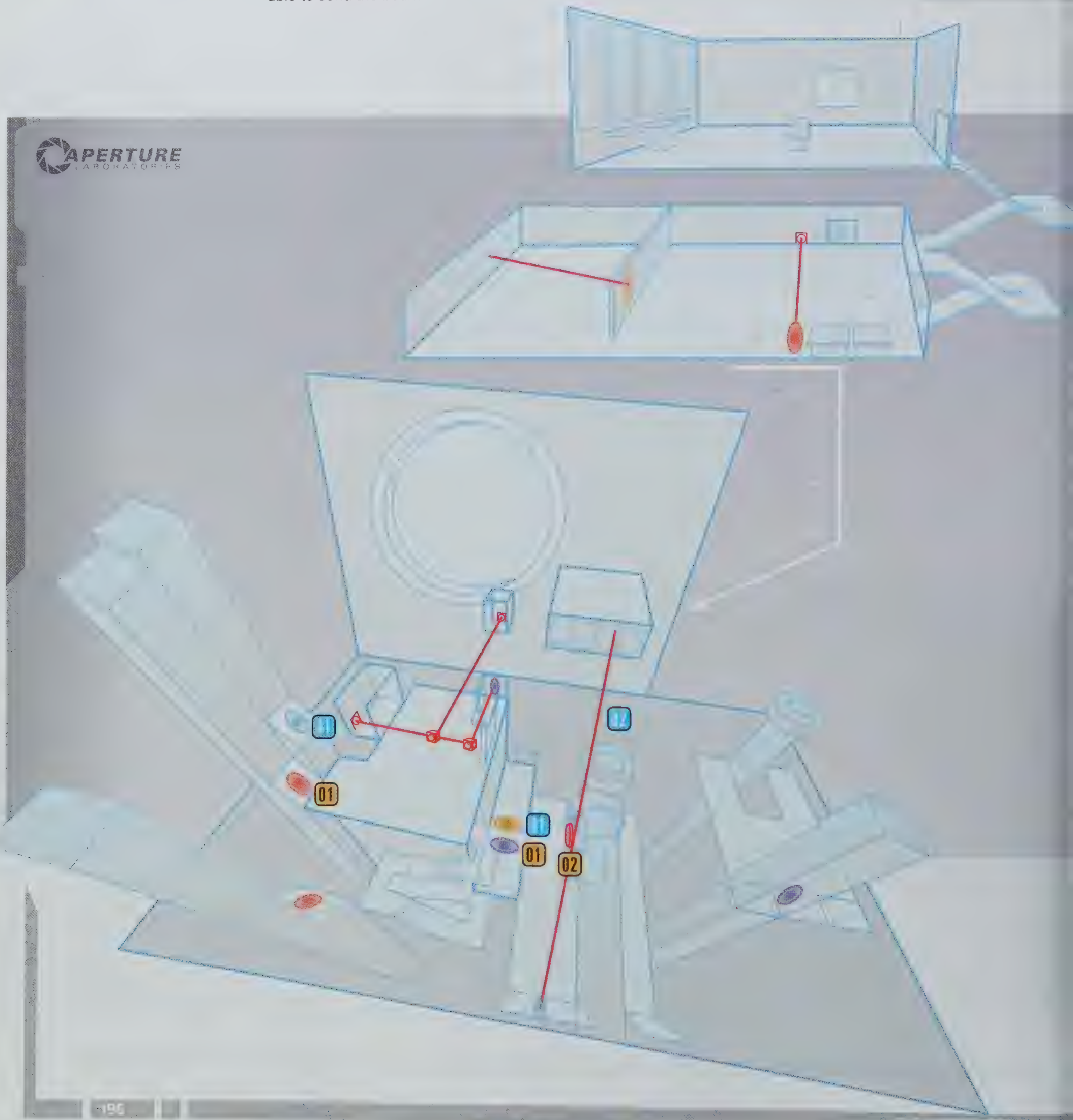
08

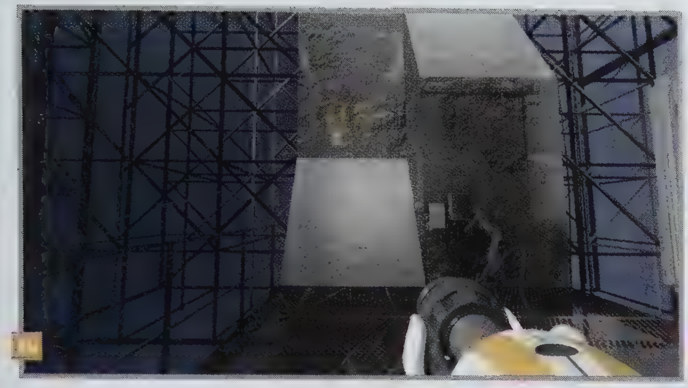
08/08

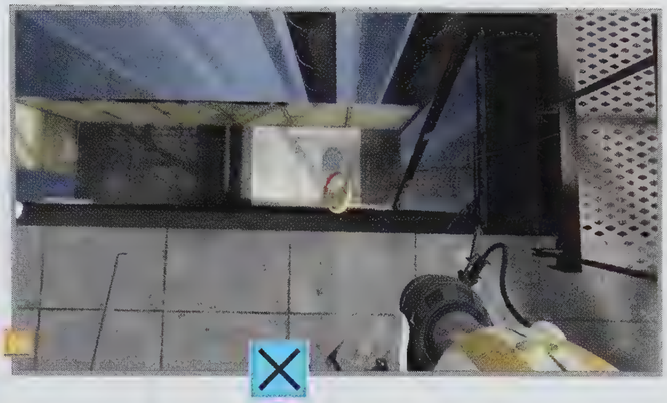
This is a huge chamber with several different elements in place, and key areas dotted all around. It integrates timed flinging to catch objects, interacting with large background objects using switches, and redirecting Thermal Beams using both cubes and portals. Remember that Thermal Beams do not have a limit of how far they can be sent, and that they can be sent through glass.

07_085

Room 01 Summary | The aim of this chamber is essentially to pass through the fan and get to the exit room on the other side which requires a simultaneous double lever pull. Stopping the fan will require you to redirect the beam, however, stopping it permanently means sending it into the receptacle in the office behind the fan. You must use all four portals to be able to send the beam into it.







01 Fire a portal onto the angled portalable surface on the rear wall. There are 2 angled surfaces here; you need to place the first portal on the lower left one. The second portal needs to be on the floor of a pit. Just to the right of the wall that the Thermal Beam is hitting is an edge, look straight down and you will see a portalable floor on the bottom big enough to hold 2 portals placed side by side. Place your second one here.

01 Place your portals next to Orange's; on the right hand side angled wall and to the left of the one at the bottom.

02 Now, you must go through your bottom portal, and fling into the button that dispenses the cube. After a brief pause, the lights at the top of the tube will flash and bleep three times, after the third bleep the cube will be shot out, where it must be grabbed in mid-air by Blue.

02 You must of course drop through your bottom portal and fling out at the correct time to catch the cube. The correct timing for this is to step off the edge the moment you hear the first bleep.

03 After grabbing it, there will be a portalable surface here on a pillar. Move the portal you placed on the pit to here and portal back to the main area.

04 Now you can use the Redirection Cube to redirect the beam into the receptacle. This will bring the big fan at the far end of the chamber to a halt. You will have to stand there and hold the cube, as there is a low wall blocking the beam if you let it drop.

05 Meanwhile, drop the Discouragement Redirection Cube for now. To the left of the Thermal Beam is a small portalable wall, place a portal here, with the exit portal being on the flat surface to the right. Now redirect the Thermal Beam through your new portals.

06 This should disable the fan permanently, so now you can place a portal in the pit and one on the wall adjacent to the fan and fling over to that area to join Orange.

07 Once there, to the left of the office is a door that requires both players to pull its levers simultaneously. Go through this door; go up the staircase and into the office. Grab the disc from the desk on the far left, and insert it into the player to complete the course.

Room continued

03 While Blue is holding the Redirection Cube, reposition your portal that was on the angled portalable surface, and put it on the angled surface that is opposite the large fan. Fall into your pit again and fling over to the fan area.

04 Go through the Emancipation Grill into the office area here. You will notice the Thermal Beam receptacle to your right, place a portal directly opposite it on the wall. Proceed around to the other side of the office, a large windowed room with a portalable wall.

05 These portals should cause the Thermal Beam to emit through the glass into the large office room. Now you can place a portal where the Thermal Beam is hitting the wall, and it should come out to hit the receptacle. If it doesn't, Blue may need to adjust the direction of the beam by looking through the portals. Use the zoom to see how you need to adjust.

06 Once there, to the left of the office is a door that requires both players to pull its levers simultaneously. Go through this door; go up the staircase and into the office. Grab the disc from the desk on the far left, and insert it into the player to complete the course.

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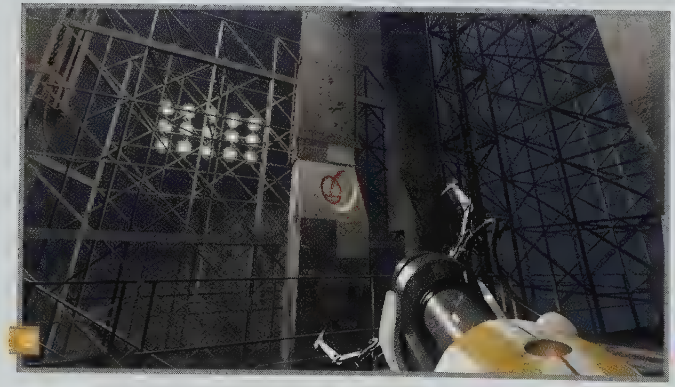

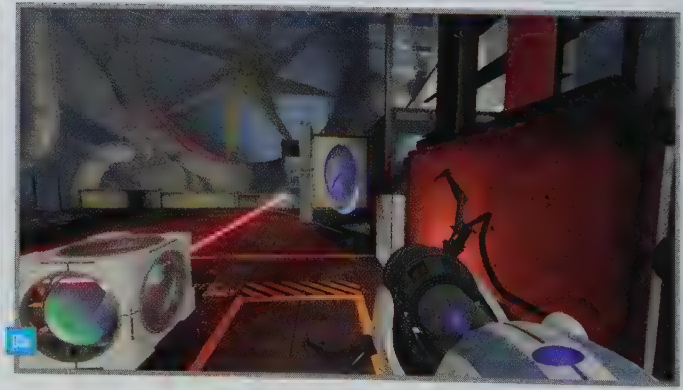

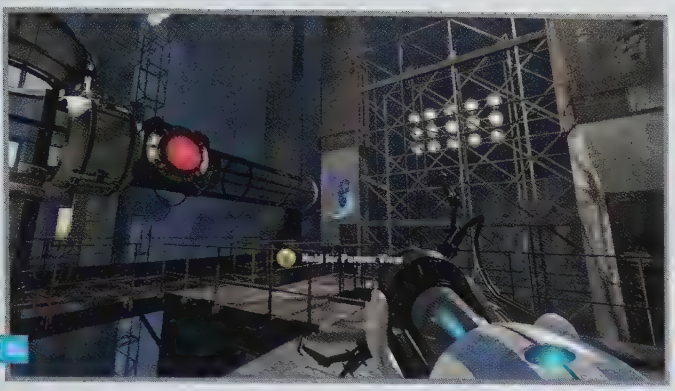

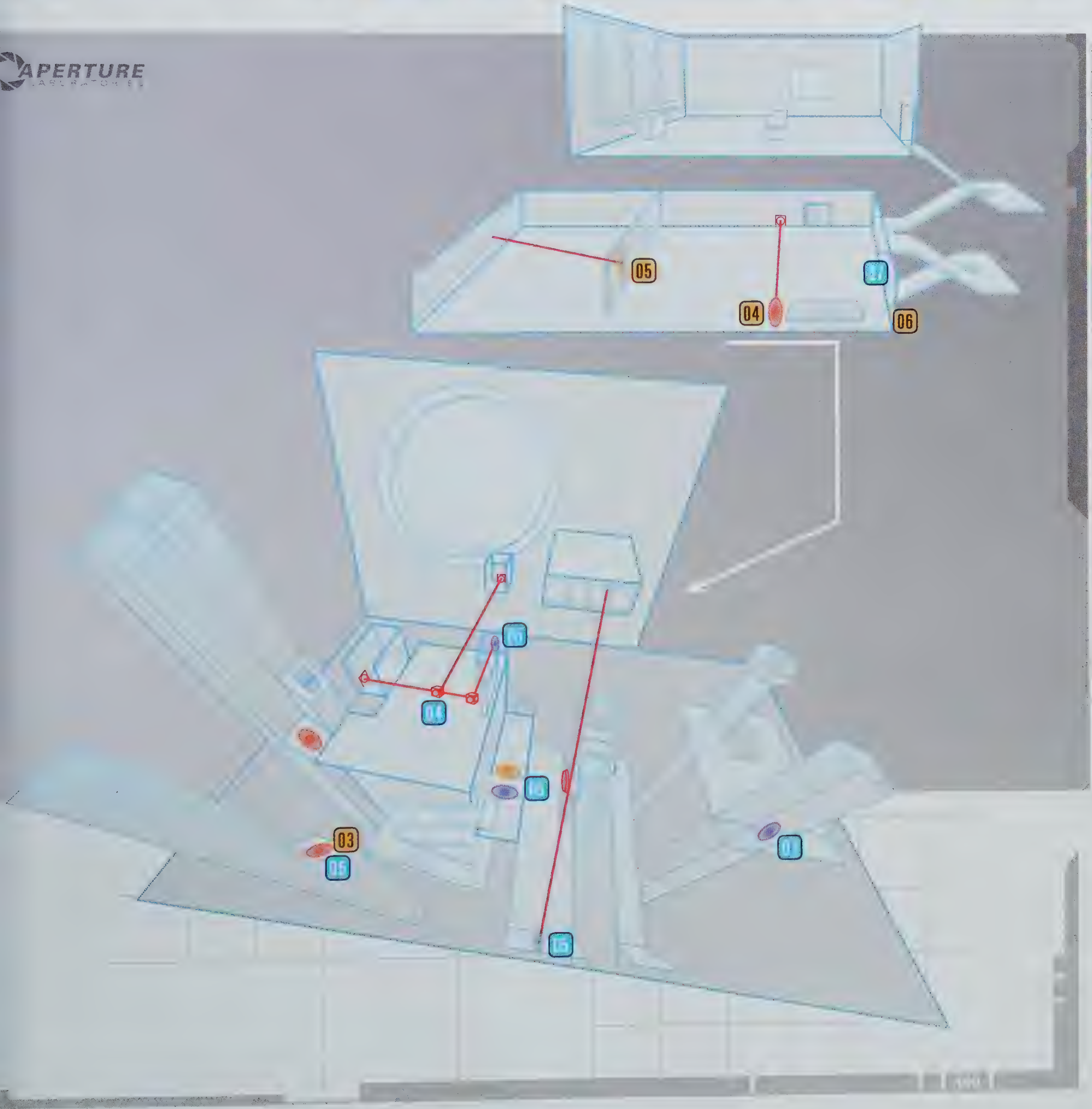
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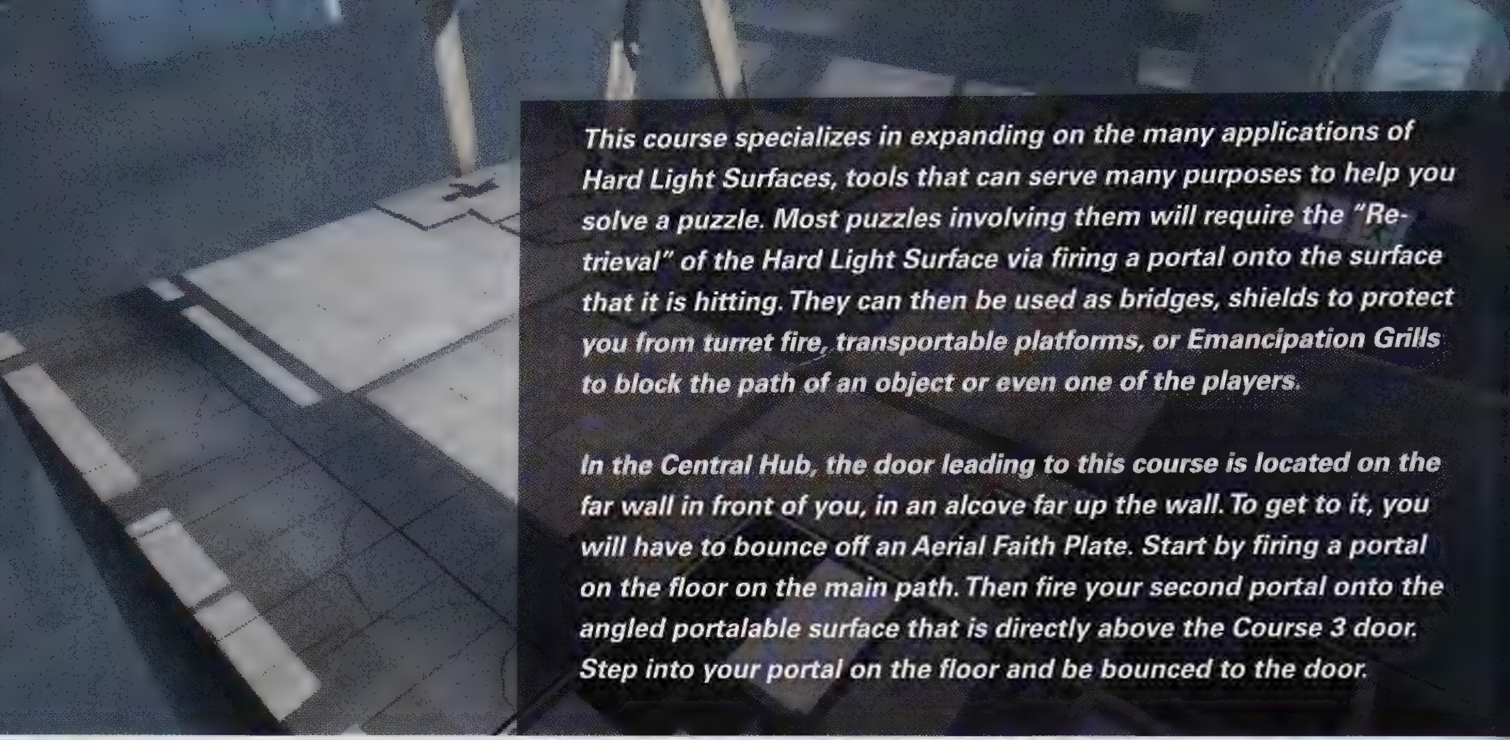
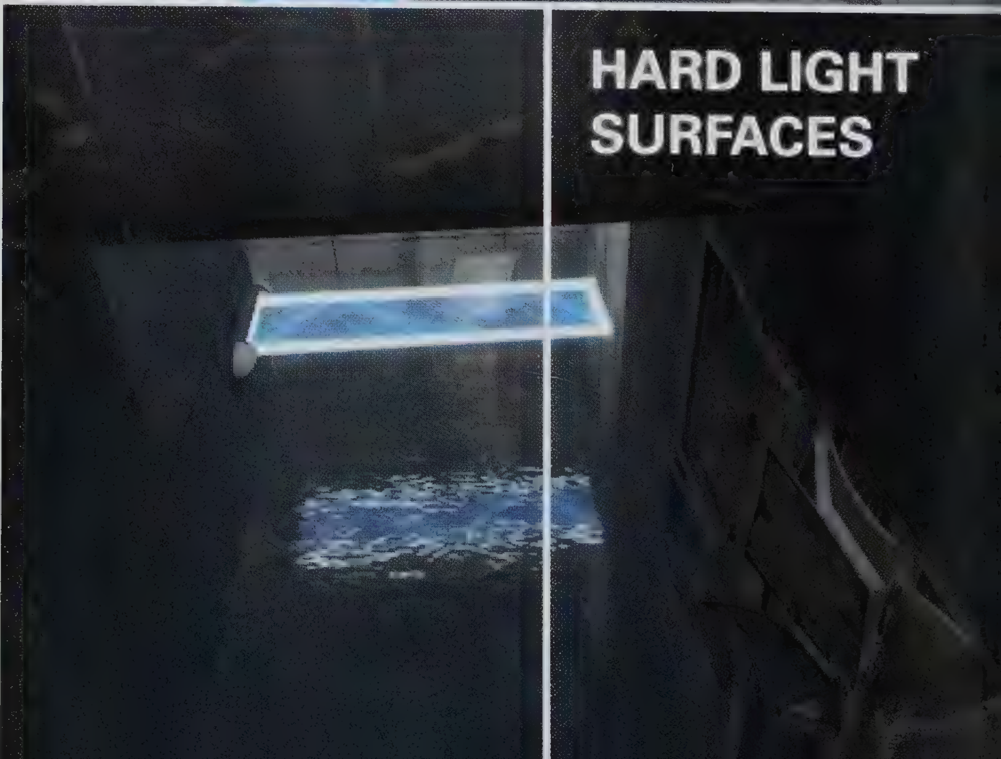
COURSE 03

HARD LIGHT SURFACES



This course specializes in expanding on the many applications of Hard Light Surfaces, tools that can serve many purposes to help you solve a puzzle. Most puzzles involving them will require the "Retrieval" of the Hard Light Surface via firing a portal onto the surface that it is hitting. They can then be used as bridges, shields to protect you from turret fire, transportable platforms, or Emancipation Grills to block the path of an object or even one of the players.

In the Central Hub, the door leading to this course is located on the far wall in front of you, in an alcove far up the wall. To get to it, you will have to bounce off an Aerial Faith Plate. Start by firing a portal on the floor on the main path. Then fire your second portal onto the angled portalable surface that is directly above the Course 3 door. Step into your portal on the floor and be bounced to the door.

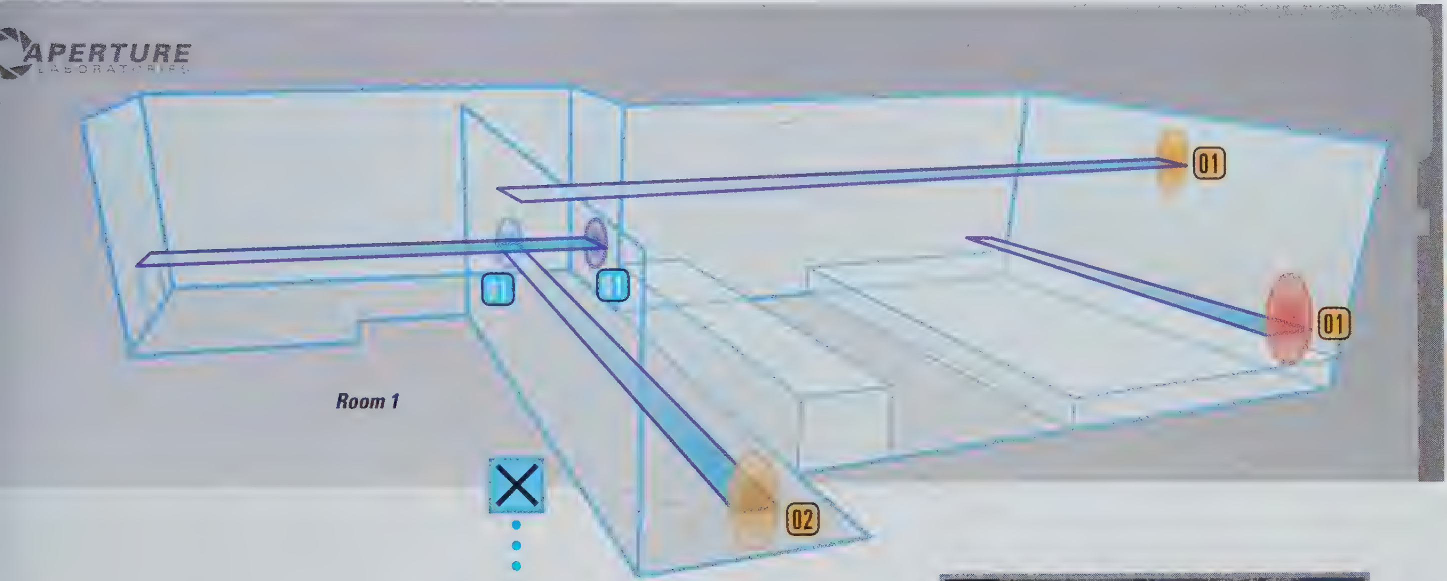


01

01/08

The first room in this chamber is, as usual, a simple room designed to re-introduce you to the key element of the Course, Hard Light Surfaces. You are primarily just required to retrieve the surface with a portal, and place your exit portal onto another surface to progress further into the room. However, things soon get more interesting in the second room. Some pre-planning is required here, as you will have to employ some new cooperative techniques that will be new to you, such as halting your partner's momentum using a light bridge, and creating new paths for your ally using surfaces that only you can see.

Room 01 Summary | There are portalable surfaces at the end of each corridor for you to move your Light Bridge. You must move the bridge onto each of these surfaces using your portals.

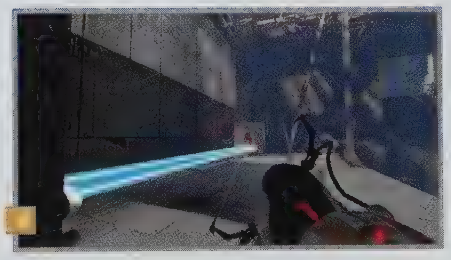


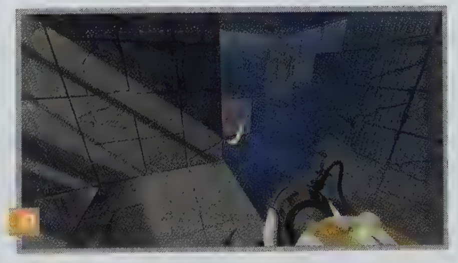
Room 1

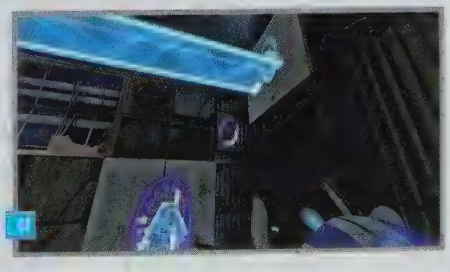
01 Place a portal on the surface the Hard Light Bridge is hitting to 'retrieve' the bridge so your exit portal can send it where you need to go. This is a common technique that will be referred to often. Place the exit portal on the high portalable wall on the left, and then both players should move through the portals and walk across the bridge.

02 When you get to the other side of the goo covered pit, drop down that side onto the platform there and look to the left, where you can see a small portalable surface. Place your bridge exit portal here now, it extends down this corridor. Both players should walk across it.

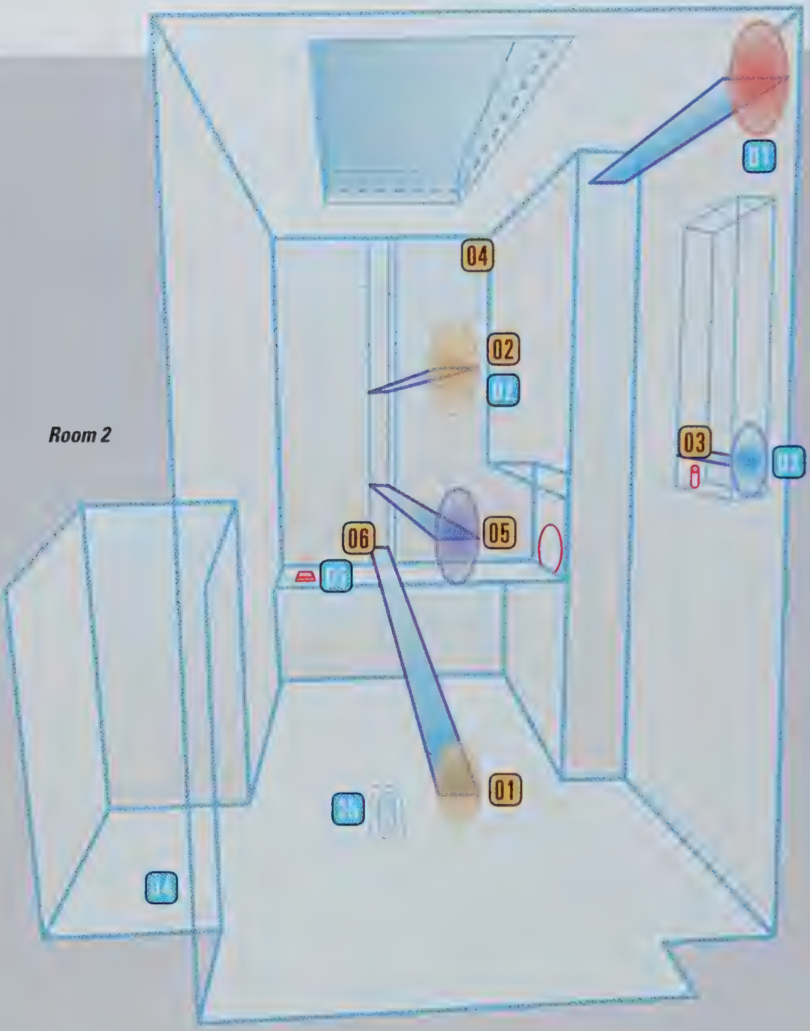
01 The bridge will end in another portalable surface. Now use your first portal to retrieve this end of the bridge, and place the exit on the portalable surface panel on the top right. Both players can now travel through these new portals all the way to the exit platform that leads to the next area.







Room 02 Summary | The solution is to use the Light Bridge to block your jump when moving the cube to ensure it does not get destroyed by the Emancipation Grill on the ceiling.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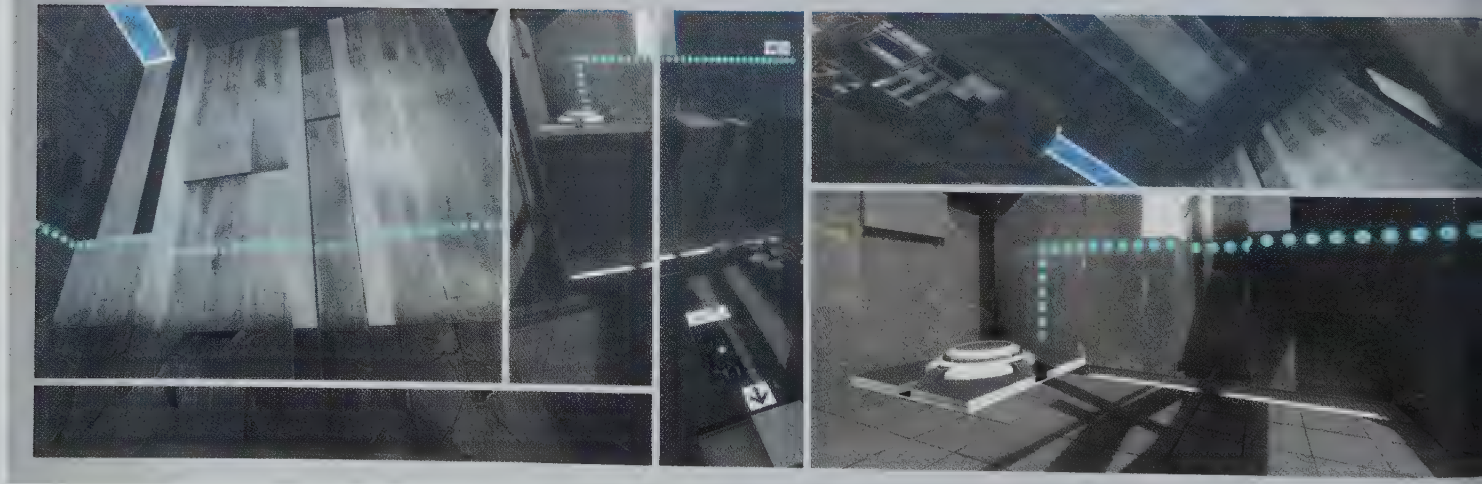


Room 2

01 Retrieve the bridge that is being generated on the far top left wall.

02 After Orange is launched up, you must place your exit portal on one of the walls so the bridge will generate underneath him after he jumps, catching him in the air.

03 Move your exit portal under the bridge generator, at the same level as the switch on the wall.

04 Retrieve the safety cube and wait near the Faith Plate.

05 Pick up the cube, and step on the Faith Plate.

06 You can now simply walk over to the far area and drop the cube into the receptacle, and head to the exit.

01 Now you need to step onto the Aerial Faith Plate which will launch you straight up.

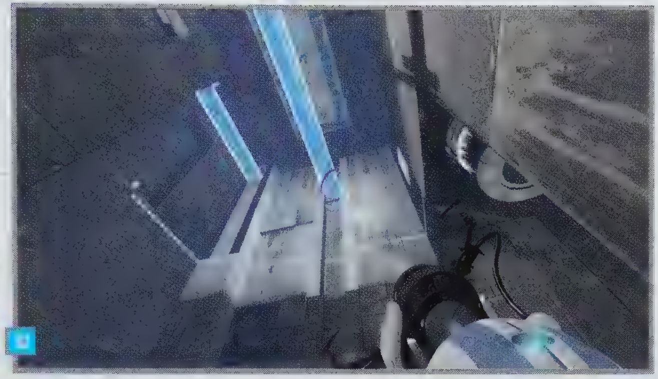
02 Now walk through Blue's portal at the end of the bridge onto the original Hard Light Bridge that is being generated.

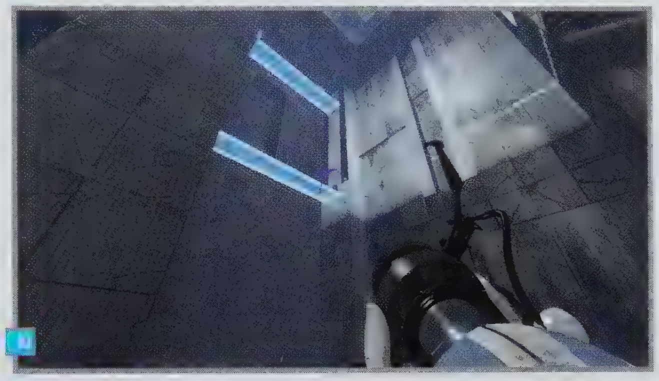
03 Walk through the portals again, which will lead you to the switch on the wall so you can press it. The Edgeless Safety Cube will now be released onto the floor near Blue.

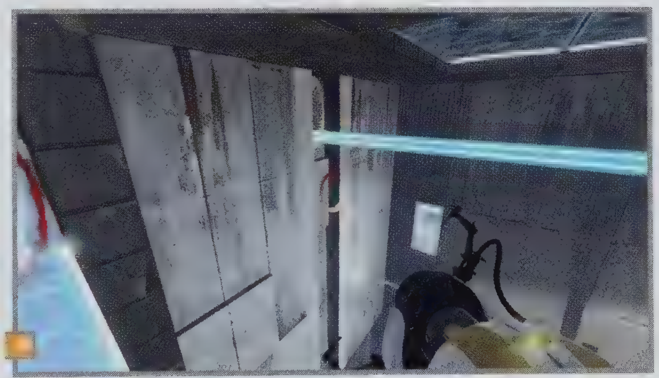
04 Walk back onto the bridge generator surface and retrieve the Light Bridge, and place it on the central portalable surface, just below the Emancipation Grill so that when Blue steps on the Faith Plate, he will jump into it, avoiding the grill.

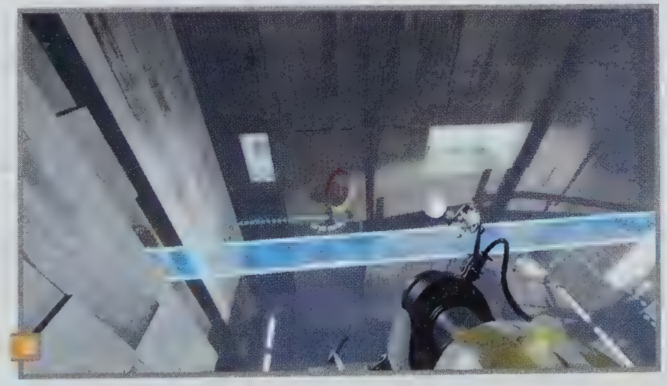
05 Once Blue bumps into the Light Bridge just under the grill, quickly place your exit portal under him before he falls so he can land on it, cube intact.

06 Go through the bridge portals and head over to the exit area.







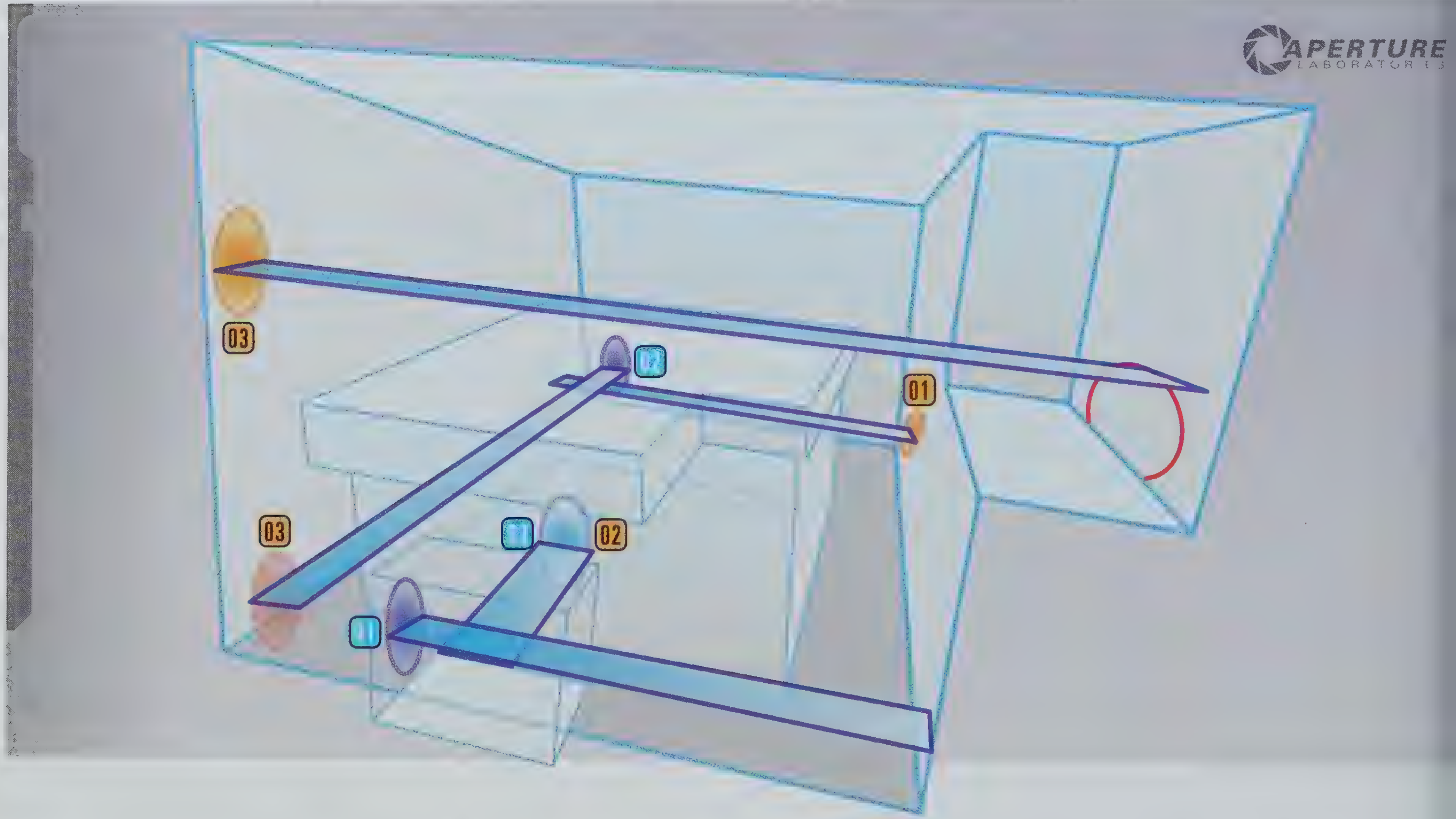


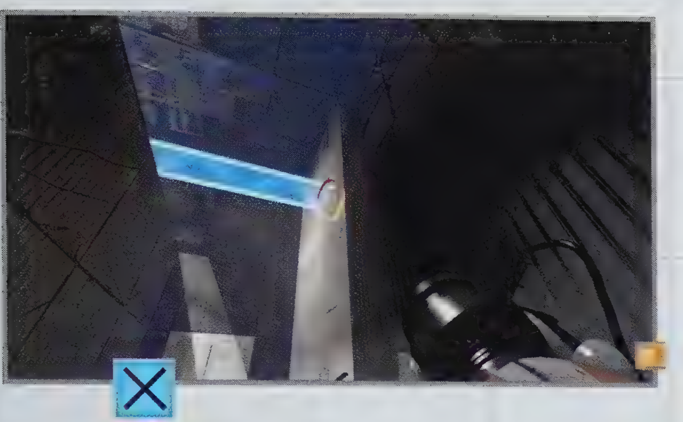
02

02/08

While this may appear to be initially a very short and simple chamber, and it can be, it can also be very difficult to solve if you don't take one fact on board: That the original Hard Light Surface that is being fired from the generator is permanent and never disappears, and that you don't always have to retrieve the Light Bridge with your first portal. You also need to take the time to fully explore your surroundings, and find every portalable surface that you can.

Room 01 Summary | To reach the exit, players will need to create a series of bridges to traverse over the top of the goo and eventually make their way up to the area with the exit. The key is using the permanent first Light Bridge to stand on while you move your exit portals.





01 Place a portal on the surface directly opposite the bridge generator, and then place your exit portal onto the wall to the left so that the bridge is extending across the first section of the goo canal.

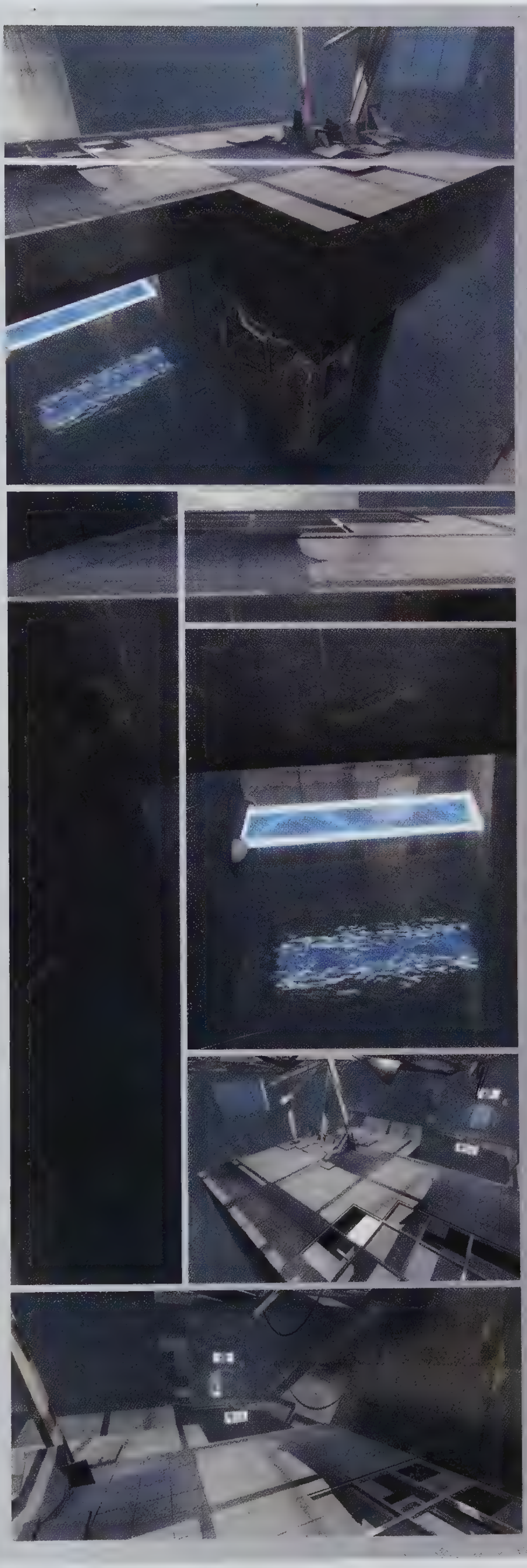
01 Head right across the bridge until you can see a portalable surface on the side wall to the left. Place a portal on this surface.

02 Head back to the initial permanent bridge and place your second portal at the end of it to retrieve it. This will create a new bridge using the previous surface you just placed a portal on.

02 Head through the portal so that you can see the next portalable surface on the other side and place your first portal here, before heading back through the portal to the source of the bridge.

03 You can now retrieve the bridge again by placing your exit portal on the surface opposite the bridge so that both players can advance to the next part of the canal through the portal.

03 Once both of you are in this area, place your first portal on the portalable surface that the bridge is now hitting, and then place your exit portal high enough up on the wall to the right so that the bridge extends past the ledge. This bridge will take you to the exit.



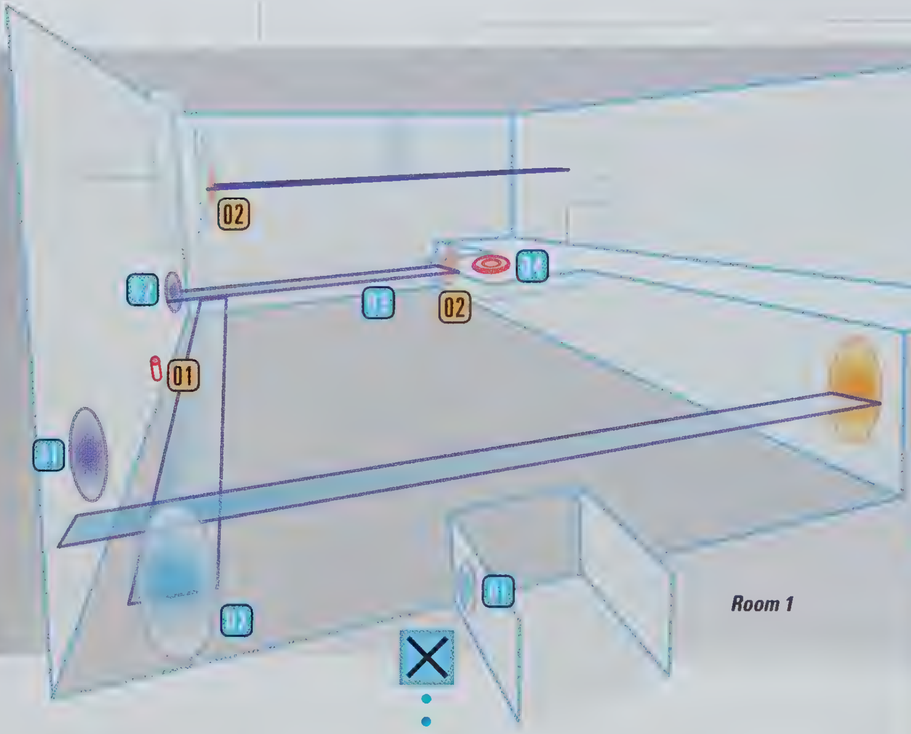
03

03/08

07_088

This chamber largely deals with retrieving and placing new Hard Light Bridges to get around. You will also be introduced to another new concept; placing a Hard Light Bridge vertically, for various reasons, the most common being to stop momentum. At this point, consider allocating one man to bridge retrieving and placing duties, and the other to hitting switches, retrieving objects, placing portals, etc.

Room 01 Summary | To complete this chamber the player must create a series of bridges that will allow them to both retrieve the Edgeless Cube safely and then make their way to the receptacle and exit door.



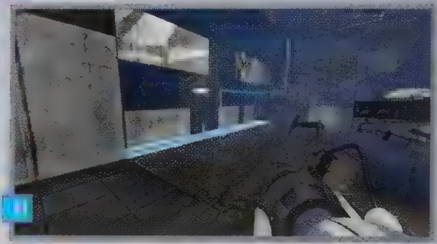
01 Begin by placing a portal on one of the surfaces near the entrance of the chamber, and then another down low on the left-hand wall so that both players can walk through it onto the bridge.

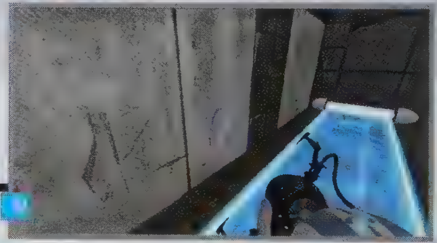
02 Reposition your first portal so that it is on the surface opposite the bridge generator, retrieving the bridge, and then place your exit portal on the surface just to the side of the generator so that a new bridge is formed which is directly underneath the Edgeless Cube dispenser.

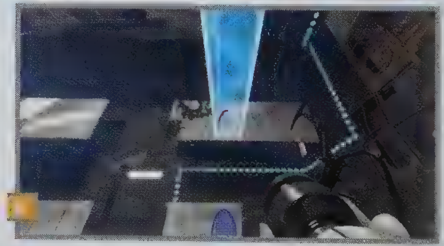
03 Get into position near the switch in the alcove on the left wall, while Blue goes onto the bridge under the dispenser and waits under it. Once you are ready, press the button so that Blue can retrieve the Edgeless Cube.

04 Drop the Edgeless Cube into the receptacle and both players can move to the next area.

Room 1



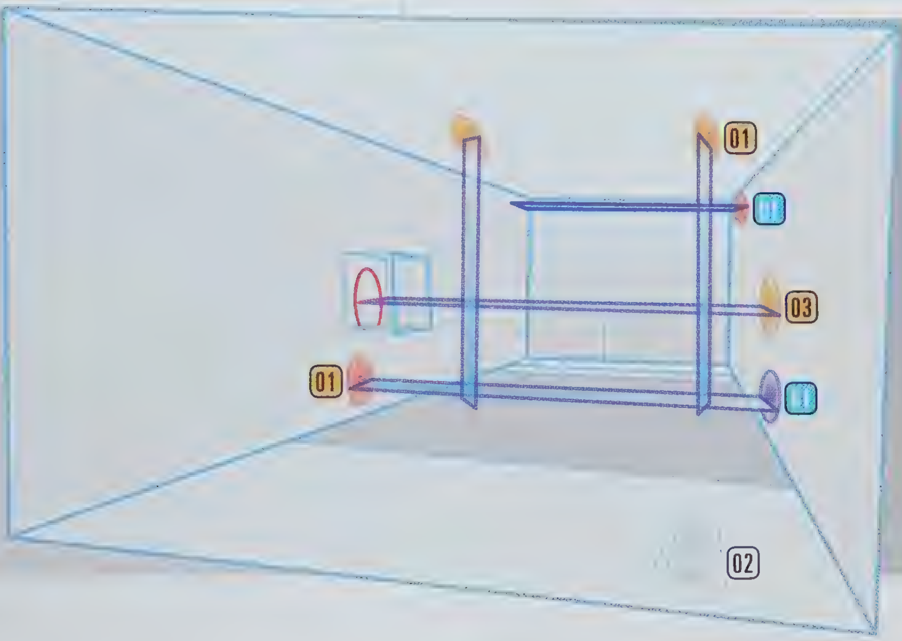




01 Get into position near the switch in the alcove on the left wall, while Blue goes onto the bridge under the dispenser and waits under it. Once you are ready, press the button so that Blue can retrieve the Edgeless Cube.

02 Once Blue has the cube in his possession, move around onto the bridge beneath the dispenser and then place your first portal on the surface on the right of the moat which the bridge is currently hitting, thus retrieving it. Then place your exit portal up high on the left-hand wall so that both players can walk through the portal and follow the bridge along to the platform with the receptacle.

Room 02 Summary | The aim of the room is for players to use the Aerial Faith Plates to fling them across the room, and to find a way to block their flight and create safe landing areas that lead to the exit.



Room 2

Room 2

01 Retrieve the Light Bridge with your first portal, and then place your exit portal on the surface opposite the exit area, on the left.

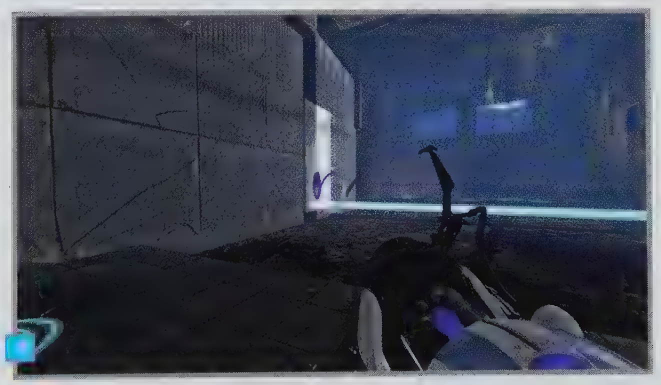
01 Place your first portal on the surface below the exit where the bridge currently ends, and then place your exit portal on the ceiling. You should place it directly opposite the Aerial Faith Plate on the other side of the moat. This will create a vertical bridge just behind the horizontal one which is already in place.

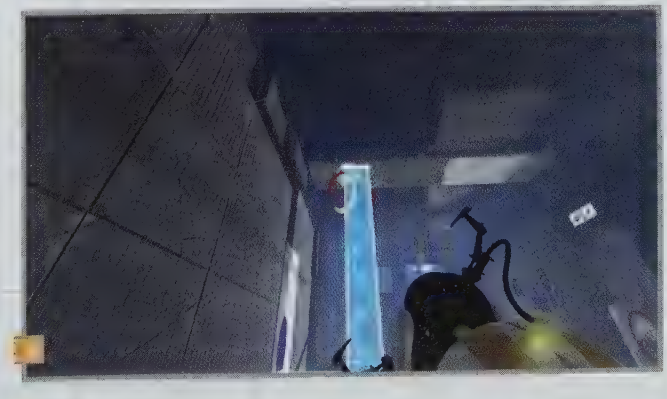
02 Both of you should step on the Aerial Faith Plate so that you are flung across the moat. Then, step on the Faith Plate on that side. This should send you straight into the waiting vertical bridge, stopping your momentum. You should then fall safely down onto the horizontal bridge below.

03 Once you've landed, move your exit portal that is generating the vertical bridge higher up on the wall, so you can walk through it to reach the exit.

Advanced Solution & Trophy/Achievement Tip

The Portal Conservation Society Trophy/Achievement must be attempted in this chamber. It requires you to complete the chamber with 5 portals or less. If you can do this quickly, it is also an advanced way to complete the chamber that is much faster than the normal solution. For more information, see the Trophy/Achievement Guide chapter.





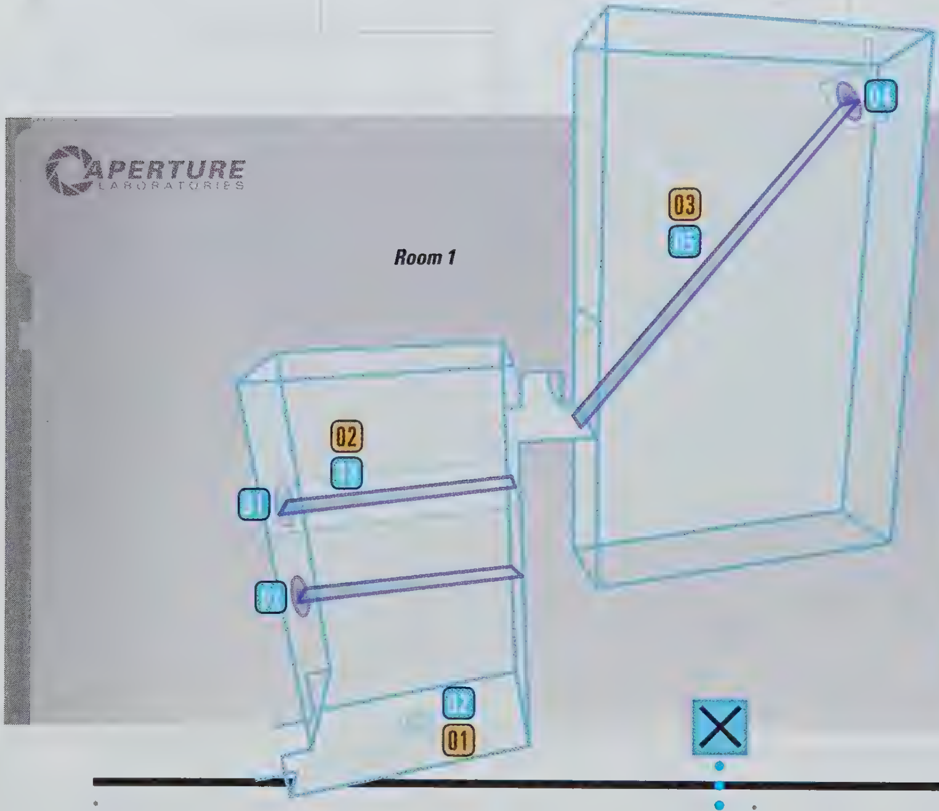
04

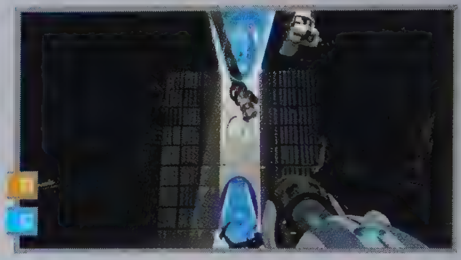
04/08

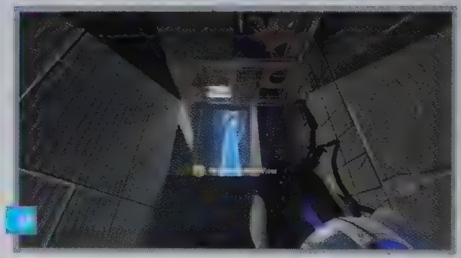
This chamber serves to remind you of an important feature of Hard Light Surfaces that you may not have been aware of; they are in fact made of light. As such, you can fire a portal straight through them, assuming you can see a portalable surface on the other side. Also, remember that retrieving the surface essentially makes it serve as a portable, movable platform, that you can place or remove at any time based on your needs.

Room 01 Summary | The aim of the room is for players to use their portals to get around the bridge blocking access to the high portion of the shaft. From there, you can arrange access to the exit platform easily.

07_089







01 To start with, place a portal on the wall opposite the bridge generator.

02 Now get ready to step on the Faith Plate. Both players should step on it at the exact same time, and as you are rising Blue should place the exit portal lower down on the same wall so that when you hit the top bridge, you land safely on the one below.

03 From here both of you should walk along the bridge and through the second portal you created to come out on the section of bridge above.

04 As soon as you are in the upper portion of the room, look upwards and in the distance you will see another portalable surface up high; reposition your exit portal so that it is on this new surface.

05 This surface is an angled one, so if you turn around and head back into your first portal, you will come walking down an angled bridge from the second portal. This bridge leads down to a platform, from which you can easily reach the airlock to the next area.

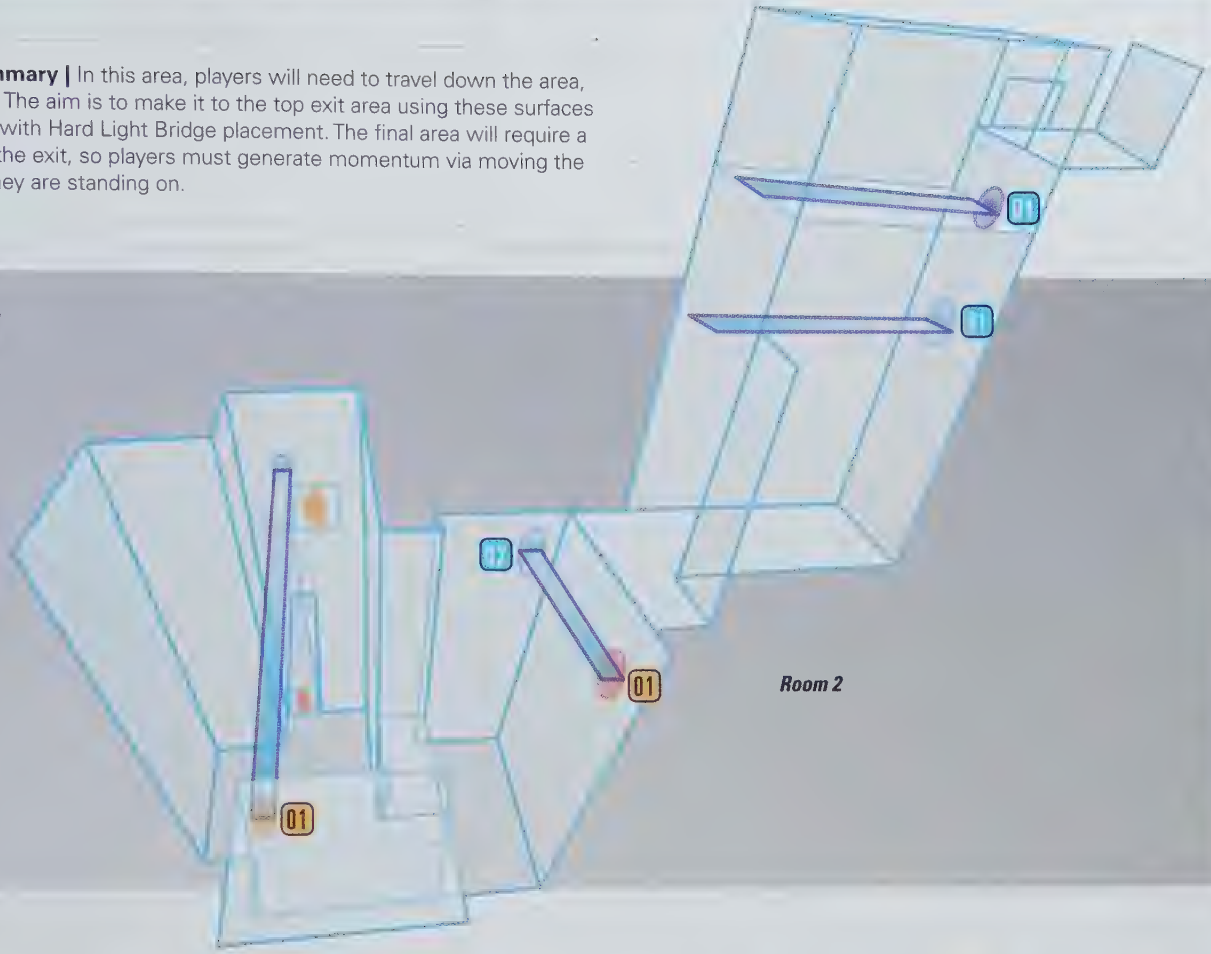
Room 1

01 Now get ready to step on the Faith Plate. Both players should step on it at the exact same time, and as you are rising Blue should place the exit portal lower down on the same wall so that when you hit the top bridge, you land safely on the one below.

02 From here both of you should walk along the bridge and through the second portal you created to come out on the section of bridge above.

03 This surface is an angled one, so if you turn around and head back into your first portal, you will come walking down an angled bridge from the second portal. This bridge leads down to a platform, from which you can easily reach the airlock to the next area.

Room 02 Summary | In this area, players will need to travel down the area, rather than up. The aim is to make it to the top exit area using these surfaces in conjunction with Hard Light Bridge placement. The final area will require a fling to get to the exit, so players must generate momentum via moving the Light Bridge they are standing on.

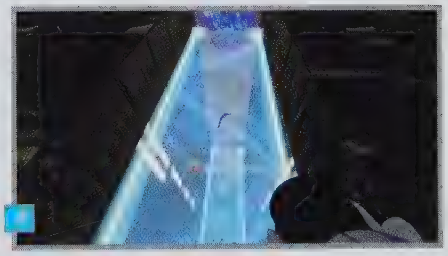


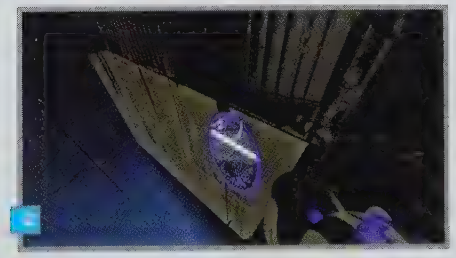
01 As soon as you enter, there is a bridge being generated to the right, blocking the path down. Place a portal on the surface opposite the generator, and then place an exit portal as far down the narrow strip of portalable surface as you can. This will allow both players to move through the portal and come out on the new bridge below the starting area.

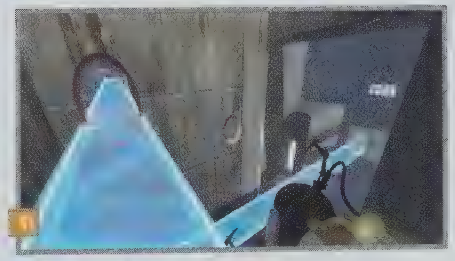
02 Once both of you are on the new section of bridge, you should step off it and drop down onto the ledge below. From there, reposition your exit portal so that it is now on the wall to the right, just below the ledge. Both players should then drop down onto the bridge and move to the right slightly.

Room 2

01 At this time, if you look out across the area you should be to able to see the sign showing you where the exit is located and just beneath that sign there is a portalable surface. Retrieve Blue's bridge with your first portal, and then place your exit portal on the surface below the exit sign. Both players can walk through the portals to reach the platform near the exit sign.







Room 2 continued

03 Look out across the area and locate a small section of portalable surface in the distance, directly opposite the exit and then place your exit portal on it so that a bridge is created across the chasm.

02 Place your first portal on the angled surface to the right of the newly created bridge, and then place your second portal on a small section of portalable surface down below the bridge by the sea of goo.

03 You will need to walk out across the bridges and position yourself directly over the portal you created below.

04 Once Orange is in position, move your exit portal onto any unused surface so that the bridge disappears beneath him and he drops down into the portal below. He will be flung to the exit.

05 Place your bridge on the far side again and stand in the same place Orange was, above the bottom portal. Then move your bridge so you fall into it, and you will be flung to the exit.

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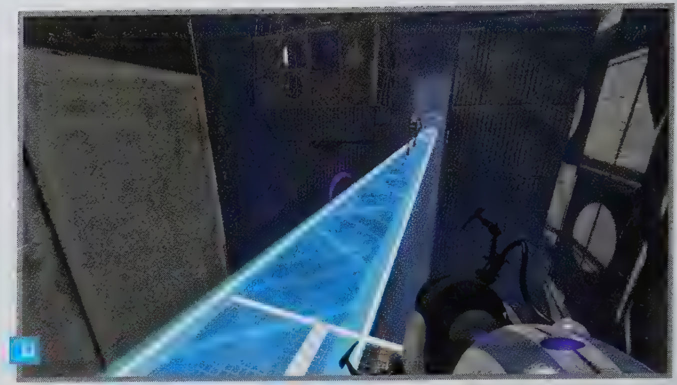

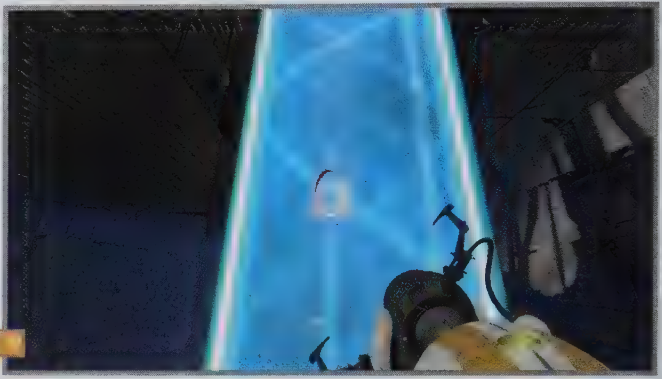

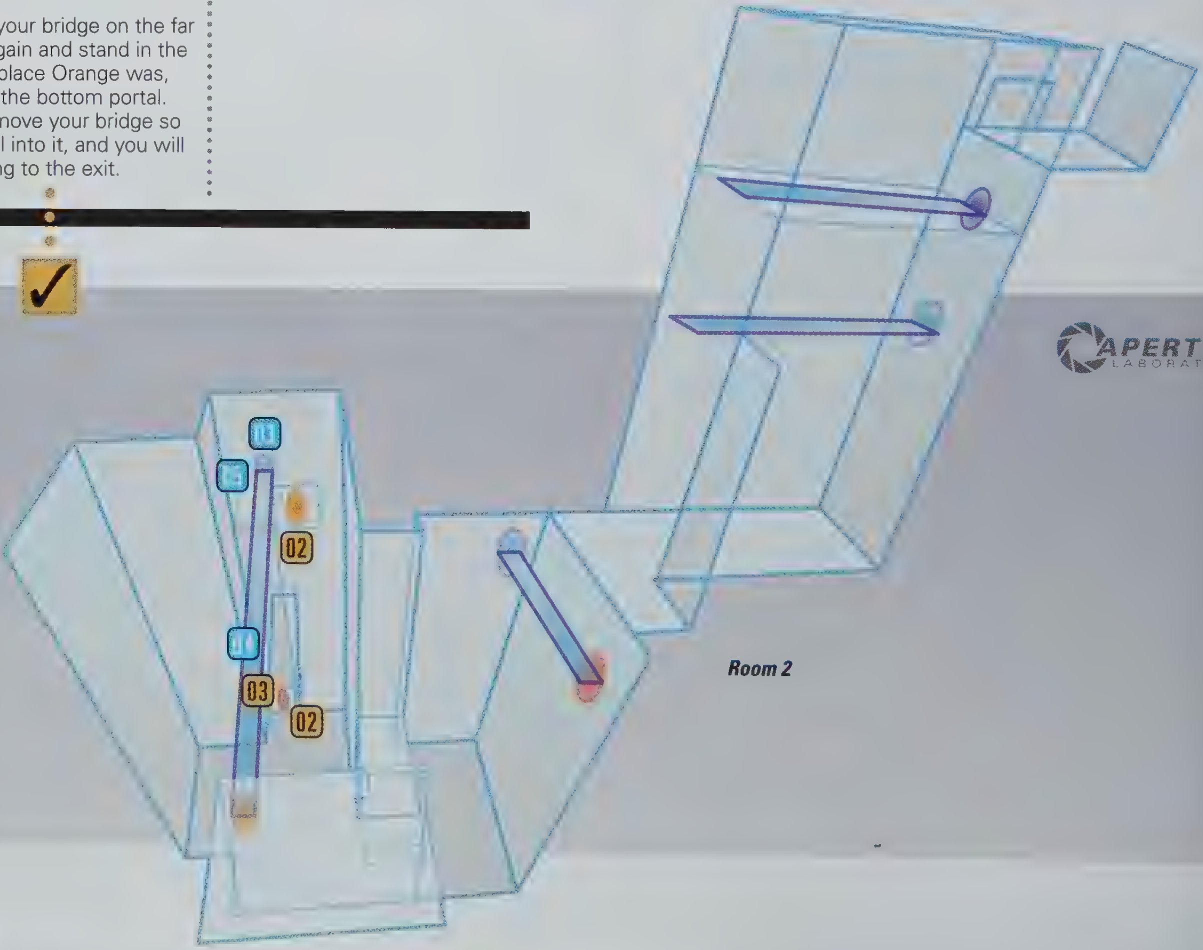

Room 2

04

Advanced Solution

This second room has an advanced solution that saves a significant amount of time.

04/08

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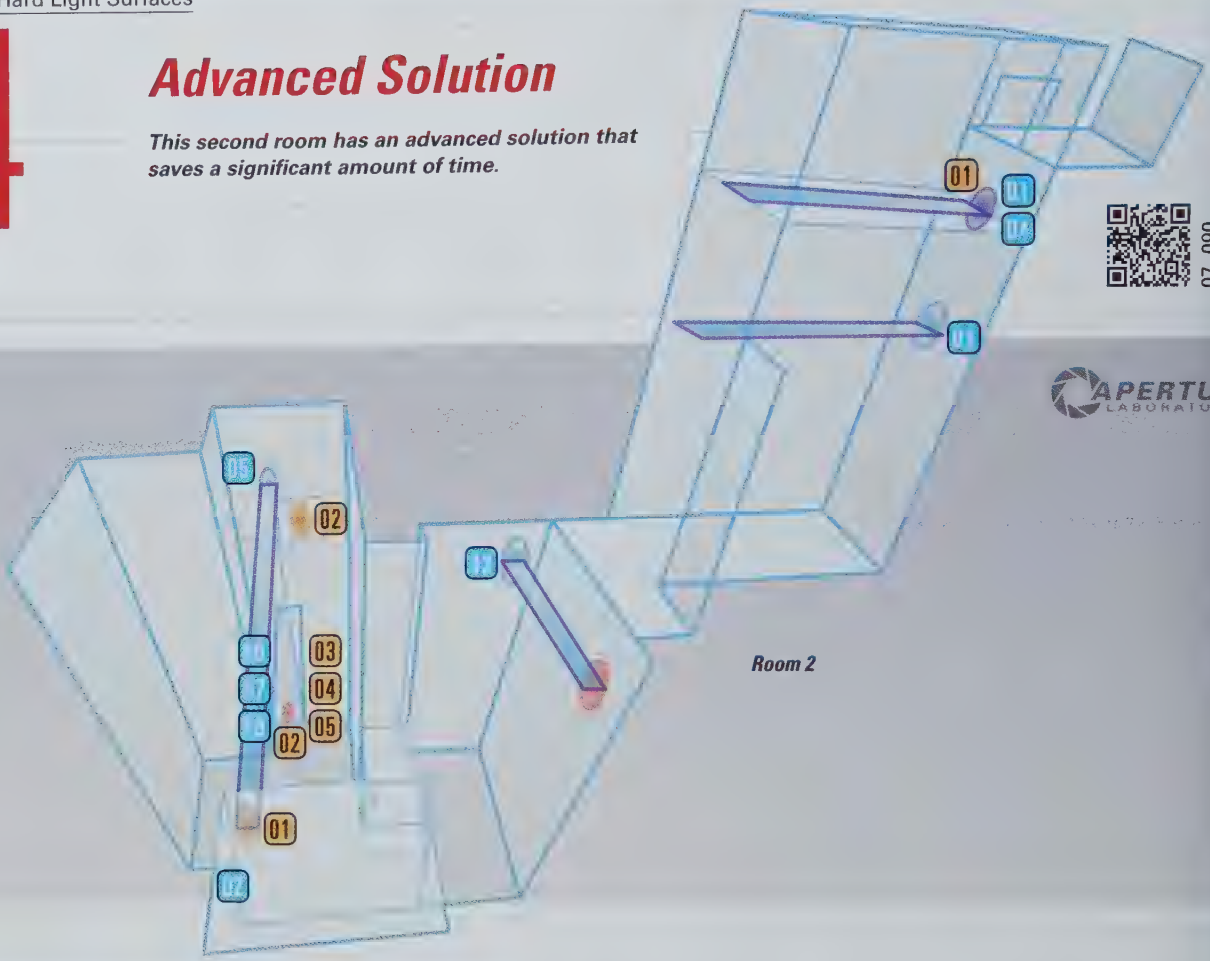
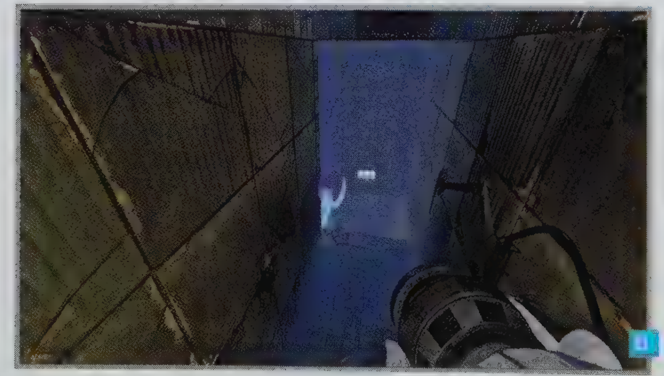
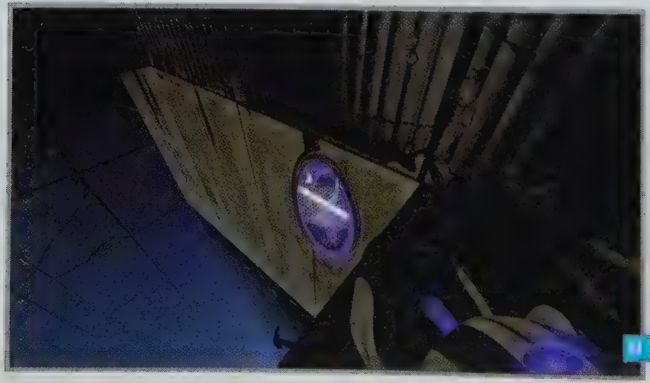






Room 2

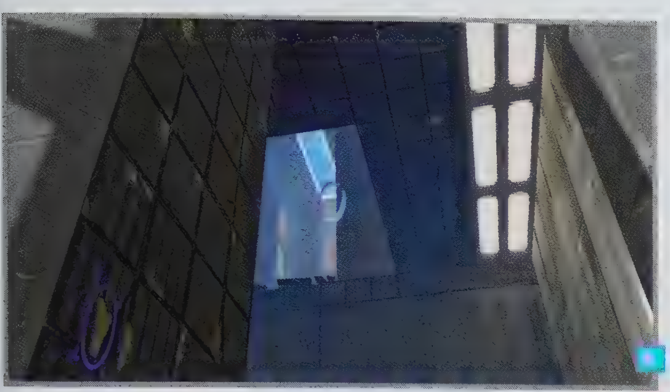
01 *Just like the first time, retrieve the end of the Light Bridge and fire through it on the wall lower down.*

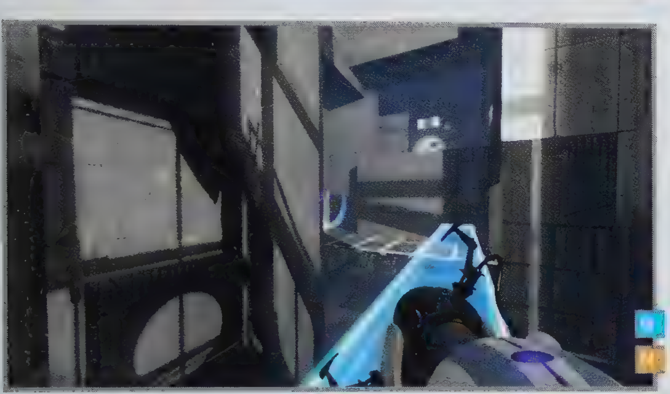
02 *Now, go through the portal while Orange stays on this bridge.*

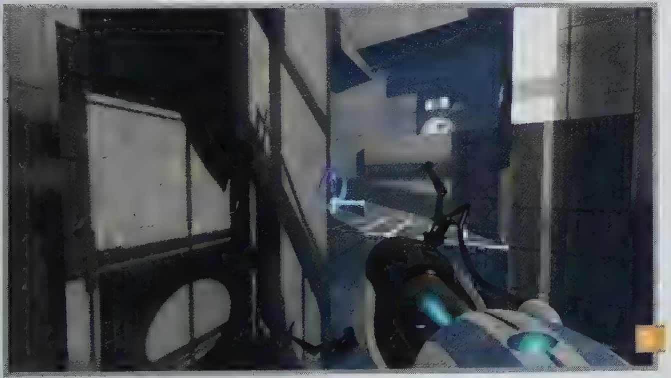
03 *After you go through the portal, walk forward slightly and fire a new exit portal on the surface below the exit area.*

01 *Now walk through the portals, which will lead you to the ledge under the exit.*

04 *As soon as Orange has walked through the portal and got to the ledge, you must move your first portal which was originally retrieving the bridge and place it on the wall to your lower right. You will have to jump into it; be careful not to miss the portal and fall into the abyss.*







Room 2 continued

02 Set up the fling as usual, firing a portal on the flat portalable surface on the floor of the pit and one on the angled surface opposite the exit ledge.

05 While Orange is setting up the fling, look back to the top right and retrieve the light bridge again.

06 After retrieving the bridge, place it on the portalable panel on the far wall, in order to perform the fling.

07 Once you have extended the bridge, both players should walk onto it and stand over the floor portal, with Orange going first.

03 Once you have extended the bridge, both players should walk onto it and stand over the floor portal, with Orange going first.

08 Both players should now be standing directly over the floor portal. Both of you should now turn around, so you are facing towards the exit ledge. The correct configuration should now be Orange standing behind Blue, both facing the exit.

04 Both players should now be standing directly over the floor portal. Both of you should now turn around, so you are facing towards the exit ledge. The correct configuration should now be Orange standing behind Blue, both facing the exit.

09 Now, Blue must jump up and fire his bridge portal onto another surface so it disappears from under both players. You can fire it on the side of the ledge where both players were just standing. If executed correctly, both players should fall through the floor portal together, with you falling slightly after, and be flung to the exit.

05 Now, Blue must jump up and fire his bridge portal onto another surface so it disappears from under both players. You can fire it on the side of the ledge where both players were just standing. If executed correctly, both players should fall through the floor portal together, with you falling slightly after, and be flung to the exit.

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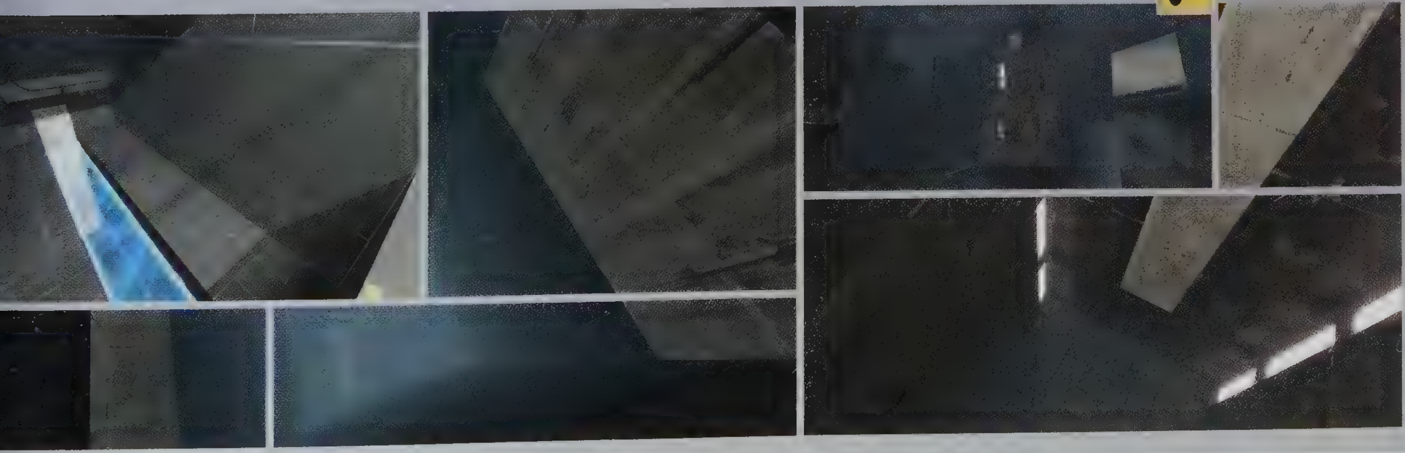


Course 03: Hard Light Surfaces

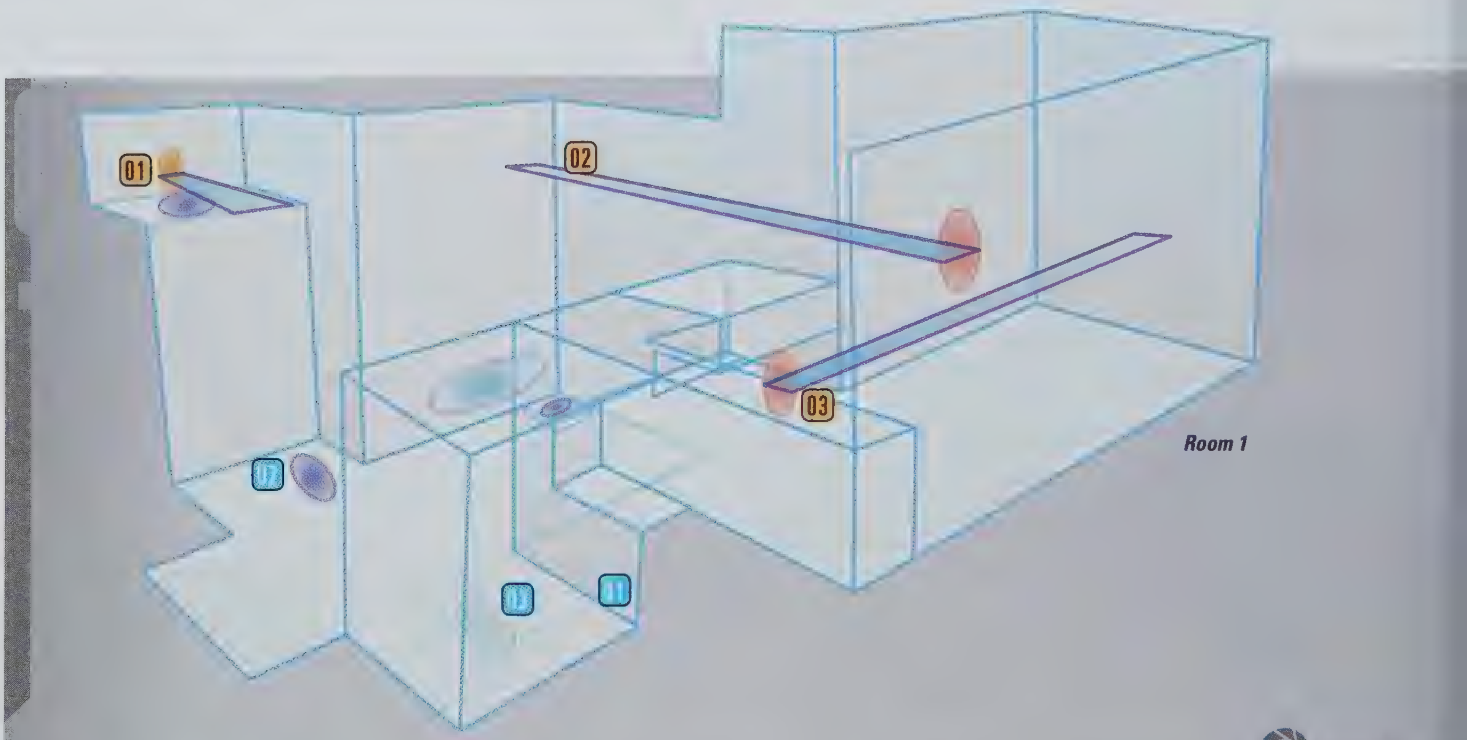
05

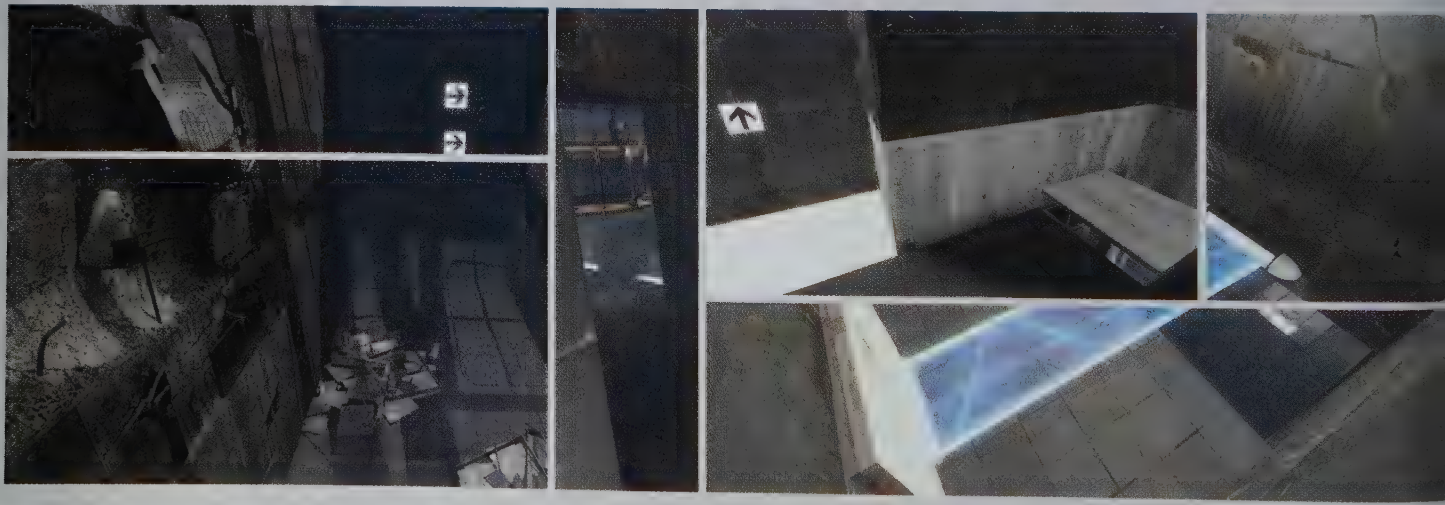
05/08

This chamber combines the earlier mass and velocity puzzles of placing a portal above a Faith Plate to redirect your momentum, with the current course's theme of Hard Light Bridge placement, both to halt your momentum and to create platforms for you mid-jump.

The second room emphasizes this, but hinders you further with deviously placed Emancipation Grills. Line of sight and team planning is a must here, to make maximum use of each available portal.

Room 01 Summary | The solution here is to use your momentum from a Faith Plate fling in conjunction with retrieving the Hard Light Bridge. Both players will have to get to the final bridge separately, as one will have to get there via extending the bridge under him after a fling and the other via travelling through portals.





01 Place your first portal on the target directly above the Aerial Faith Plate, and then place your second portal on the slightly raised portalable surface on the floor.

02 Reposition your exit portal from below the small raised surface to the surface that is directly beneath the bridge generator.

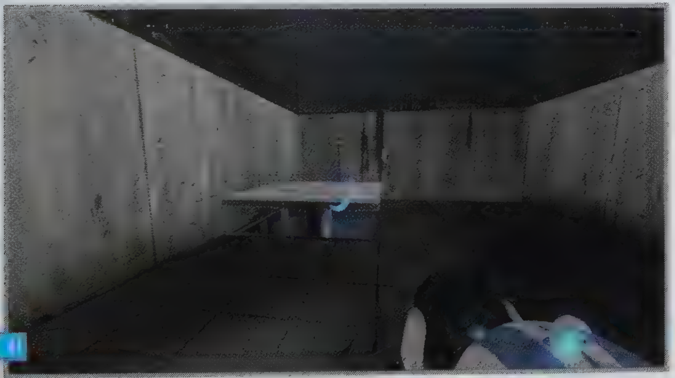
03 Now you can fling yourself via the Faith Plate up to the bridge generator area, and then walk through that portal to where Orange is, joining him on the lower platform.

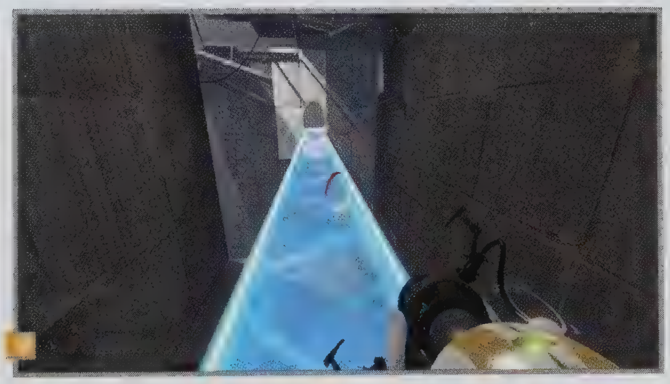
Room 1

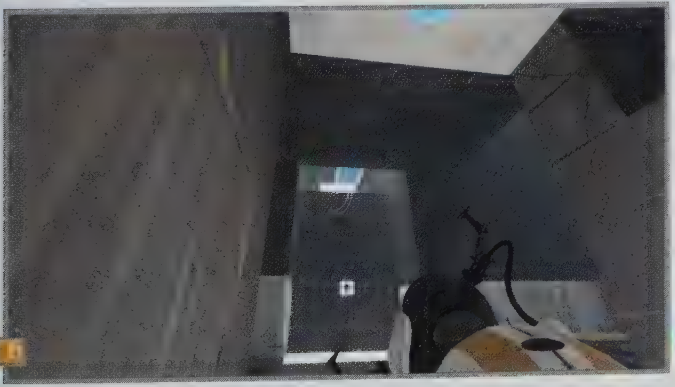
01 Back up to the far rear of the alcove that contains the Faith Plate, from here you should be able to see the portalable surface that the Hard Light Bridge generator is sending the bridge into. Retrieve it with a portal.

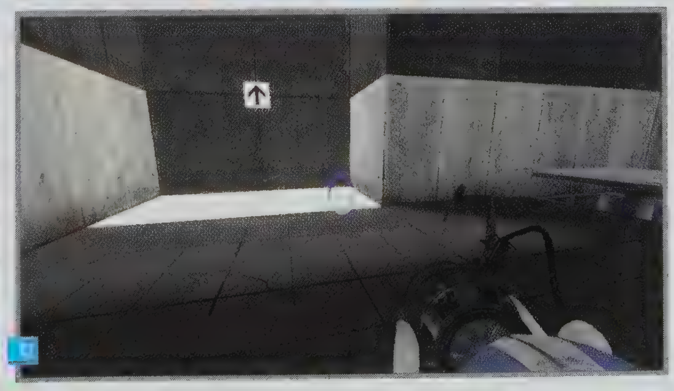
02 Now step onto the Faith Plate, and when you are flung upwards, you need to place your exit portal on the far wall in front of you, slightly below you so a Hard Light Bridge is formed underneath you. Follow this bridge to the end, and then drop down to the platform to its lower right.

03 You can now simply create a new exit portal on the portalable surface that is on the wall next to this lower platform, which both players can follow to reach the exit.

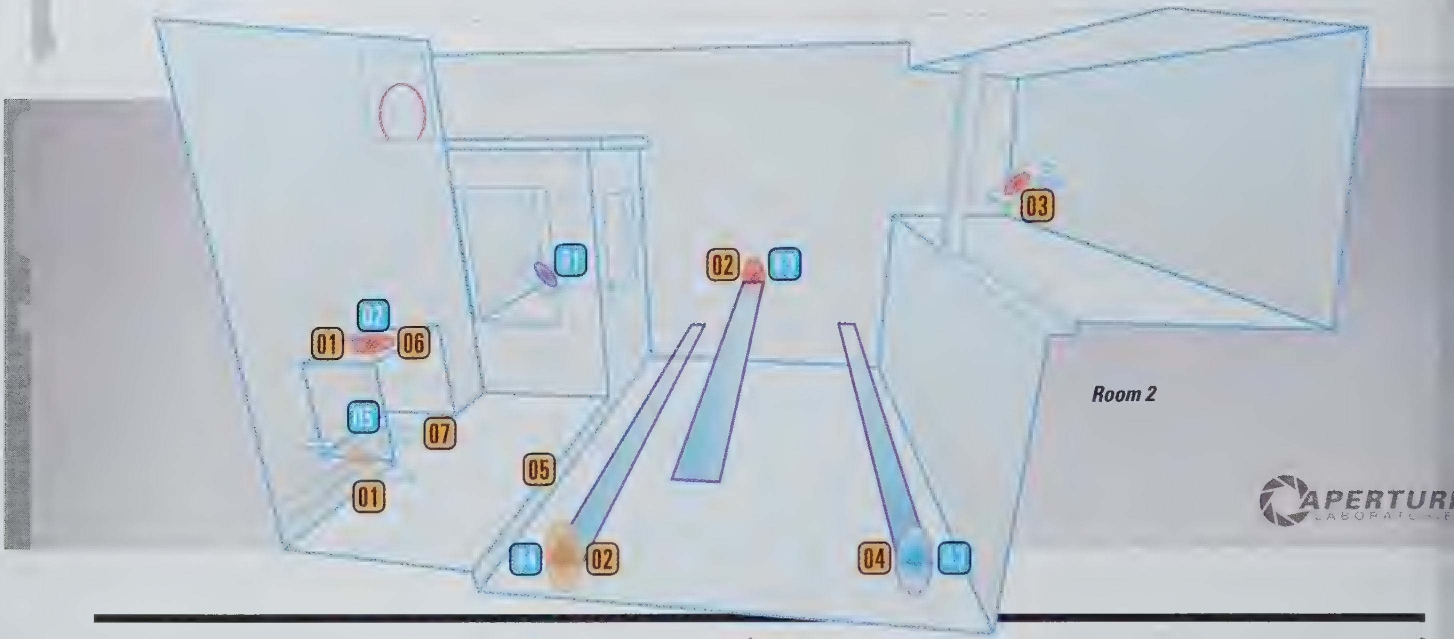








Room 02 Summary | The Emancipation Grills here will hinder you greatly as you fling from area to area. The aim of this room is to have the first player make it through the Emancipation Grills while the second player creates the bridges to help in order to set up a long range fling to make it across to the exit.



Room 2

01 You can now fling yourself to the small room through the Emancipation Grill. While here, place a portal on the angled surface in this room.

02 You can now jump onto this low Light Bridge, back to the starting area, and place an exit portal above the Faith Plate in the alcove.

03 It is now your job to guide Orange back via the hard light surfaces. First, retrieve the bridge again and place it on the far portalable panel above the goo, the one nearest to where Orange is on the higher platform.

04 Reposition your exit portal again so that it is on the left-hand, lower surface again.

05 This is the final configuration for the portals and it is important that that you step on to the Aerial Faith Plate and complete the fling first; if Orange goes first, his portals will disappear when he passes through the Emancipation Grill, meaning that the portals will need to be set up from scratch again.

01 Put a portal above the Aerial Faith Plate and an exit one on the diagonal surface near it.

02 Retrieve the Light Bridge that is hitting the middle surface above the goo, and place it on the far left of the three sets of portalable panels.

03 Step on the Faith Plate, and fling across the moat to the high area on the other side. While here, you must place a portal on the angled surface you find here.

04 You will then need drop onto this bridge and walk through the portal so that you are on the middle bridge.

05 You can now go back trough the portal on the middle bridge on to the lower area and jump across to the starting area.

06 Place your exit portal above the Aerial Faith Plate (make sure not to move the one that you placed on the angled surface on the far side!).

07 After Blue has gone through, you can follow.

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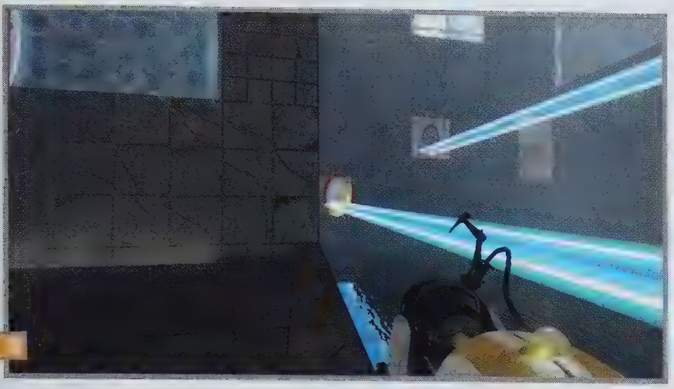

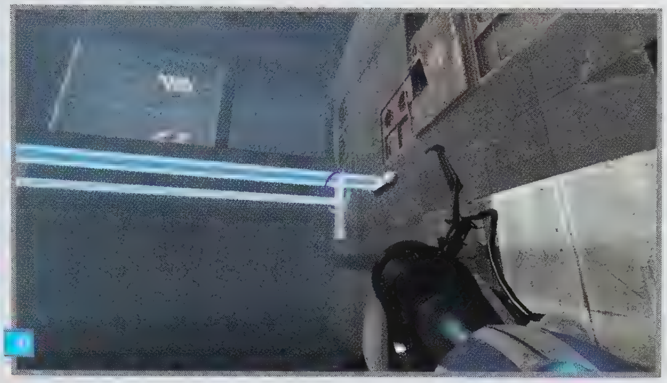

05

Advanced Solution

This second room has an advanced solution that saves a significant amount of time, and completes the room using only four portals!

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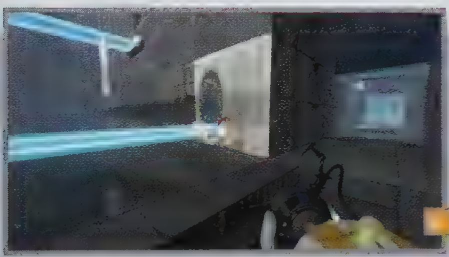
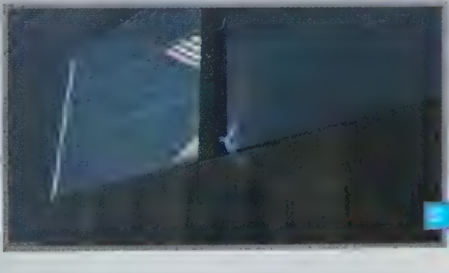
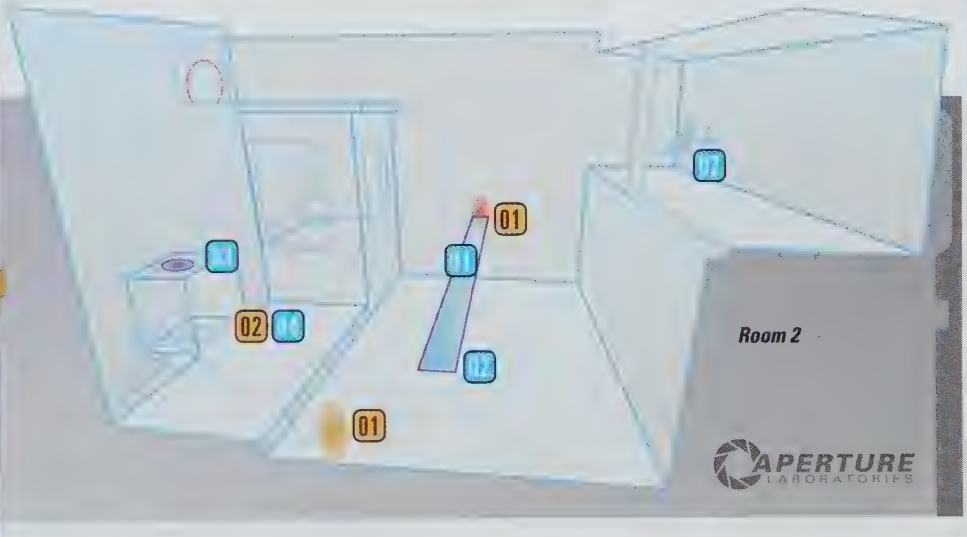






Room 2

01 *Jump onto the bridge and walk through the portal at its end, emerging onto the middle bridge.*

02 *Walk to the very end of this bridge, so you are pressed up against the wall that the Light Bridge generator is on. Turn around, look up and to the right. You should be able to see the corner of the angled surface on the right. Fire a portal onto it.*

03 *Jump back down to the first bridge, then back to the starting area. Place your exit portal above the Faith Plate.*

04 *Step onto the Faith Plate after Orange and finish the chamber.*

01 *Retrieve the Light Bridge with your first portal, and then place the exit portal on the lower surface.*

02 *Step onto the Faith Plate and fling to the exit. Do this before Blue, as his portals will be erased when he does it.*

✓

06

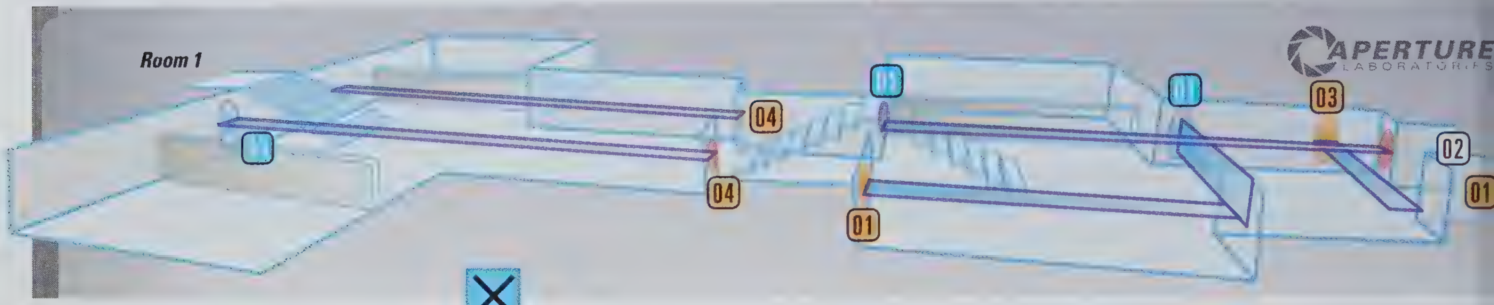
06/08

07_093

This chamber introduces yet another way to use the ever-versatile Hard Light surfaces: As shields to protect you from turrets. This is a concept you will use a lot throughout these last few chambers, and in other courses.

Also remember that you can always travel through the portals that you are using to generate your bridges, regardless of how the bridges are oriented or how little space there seems to be to fit through. You can also usually crouch under these sideways placed bridges if you need to get past.

Room 01 Summary | Players will need to redirect the bridge so that it both creates an opening for them to advance through, while at the same time keeping them safe from the turrets. The area past the stairs has a similar set-up, except there are turrets on both sides blocking your progress.



Room 1

01 Retrieve the bridge and then place your exit portal on the surface just to the right of the stairs in front of you, past the bridge. This will create a bridge that will block the turrets.

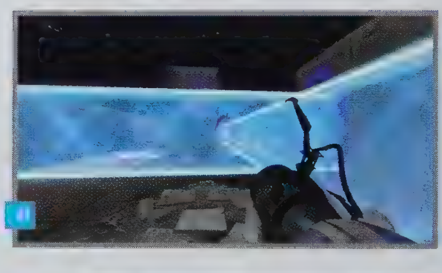
01 Place your first portal on the wall that the blocking bridge (that Blue just created) is hitting near the entrance, and then place your exit portal on the surface just to the left of the stairs.

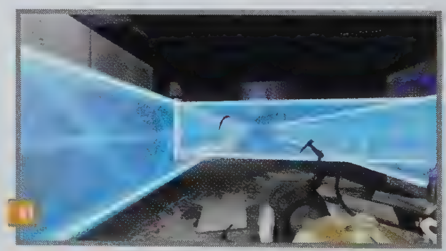
02 Both players can then walk through Orange's first portal to get to the other side of the bridge.

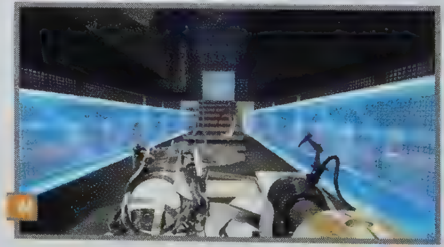
03 Reposition your exit portal to somewhere near the start area so that the path to the stairs is open and both players can advance.

03 You will need to reposition your exit portal so that it is on the surface to the left of the second set of stairs; this will create a bridge that blocks one set of turrets.

04 Place your first portal on the surface directly to the left after descending the first stairs, and then place your exit portal on the surface to the right so that the bridge is extended to block the turrets on the right hand side. Both players can then safely walk past all of the turrets and up to the exit to the next area.



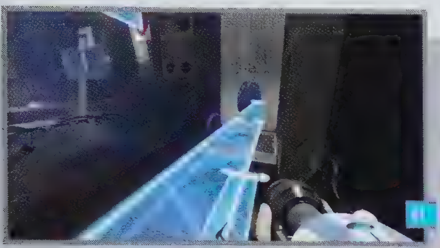


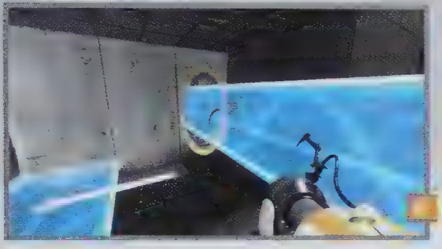


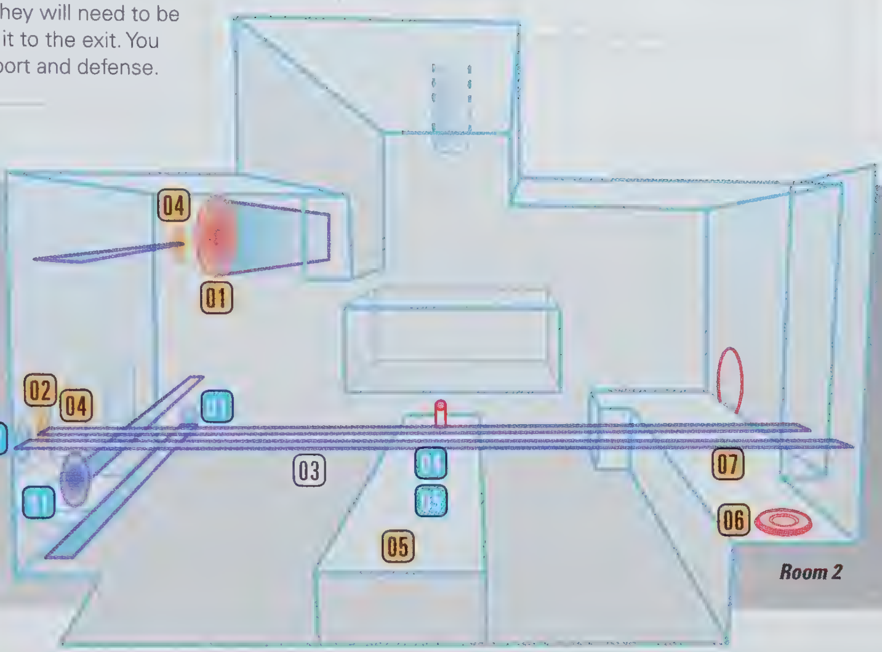
Trophy/Achievement tip:

This is an excellent place for both players to get the Can't Touch This Trophy/Achievement. See the Trophy/Achievements chapter for more information.

Room 02 Summary | The biggest threat in the room is the set of turrets in an alcove on the left of the room, and they will need to be blocked before players can even think of making it to the exit. You must use the 2 bridge generators for both transport and defense.







01 Retrieve the bridge from the bottom bridge generator with a portal. Then place your exit portal on the surface above the generator so that the bridge is extended above the current one.

Room 2

01 Retrieve the bridge from the second bridge generator up above. Both of you should walk across Blue's bridge, until you get to the end of it where there is a small alcove on the right. Step into it.

02 Reposition your exit portal so that it is on the left-hand side of the alcove. This will create a bridge leading directly across the moat to the exit area.

02 Place your exit portal on the left-hand side of the alcove, just behind Blue's portal. This will create another bridge running parallel to the first one that will act as a shield to block the turrets.

03 Both of you should then walk along the bridge until you reach the area with the switch and Edgeless Cube dispenser.

04 Position yourself so that you are as close to the blocking bridge as possible while facing the switch.

04 Orange will need to reposition his exit portal to a different wall while Blue moves forward quickly, presses the button to trigger the dispenser and then retreats back. As soon as Blue has moved back far enough, put the blocking bridge back in place to protect both players from the turrets.

05 Orange will need to reposition his exit portal to a different wall while Blue moves forward quickly, presses the button to trigger the dispenser and then retreats back. As soon as Blue has moved back far enough, put the blocking bridge back in place to protect both players from the turrets.

05 The Edgeless Cube will start rolling around on the floor if left unattended, so immediately turn around and pick up the cube as soon as you have re-placed your bridge before it falls into the goo.

06 Once you have the Edgeless Cube, continue across the bridge and then drop the cube into the receptacle on the ground to open the exit door.

07 Once the door is open, you will need to move your blocking bridge so that both of you can progress through the exit door and complete the chamber.

✓

07

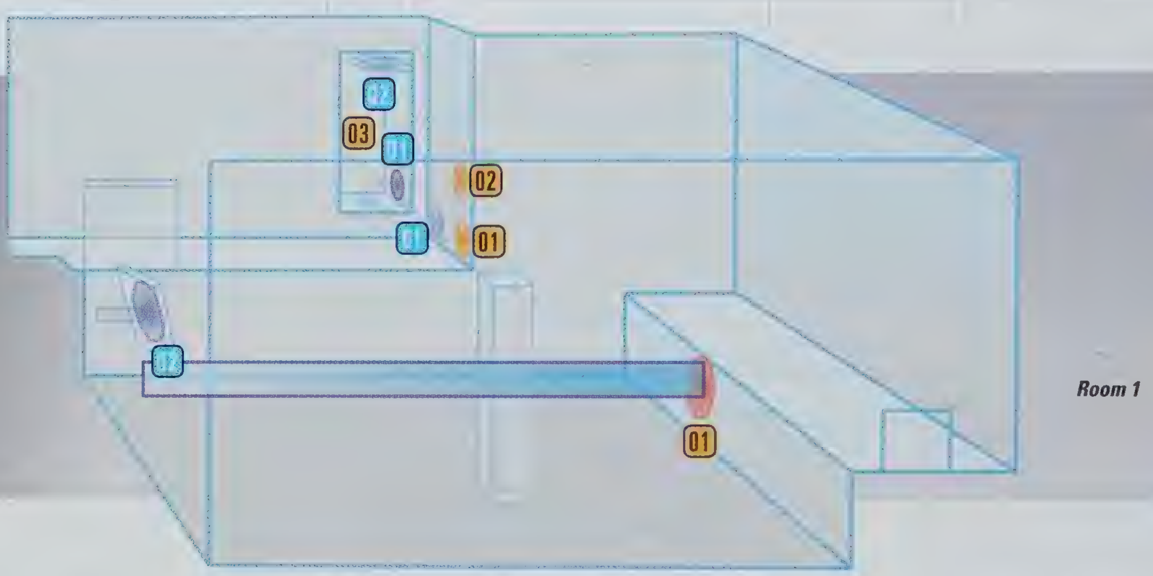
07/08

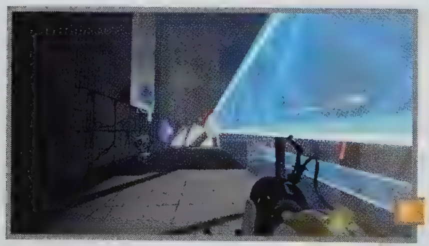
07_094

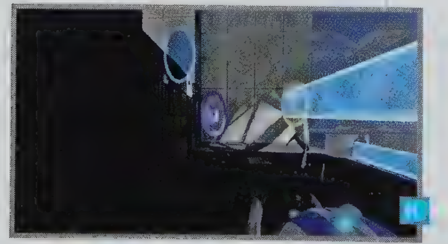
This chamber again emphasizes the use of bridges as shields to protect you from turrets. However, in this chamber that will not be enough, as the turrets are placed in such a way that completing the chamber would be impossible without dealing with them somehow.

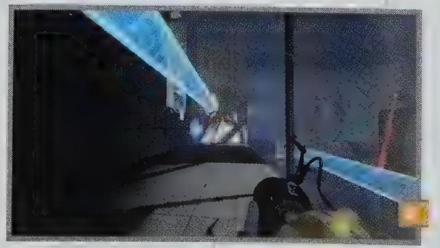
Remember that you can interact with turrets in several ways and can put them out of commission via another object, or even by picking them up yourself, should the opportunity present itself. Also, if there are objects flying around the room, the chances are good that they can be re-directed with portals for a useful purpose.

Room 01 Summary | The centerpiece of this room is the turret, it will hinder all your movements and is the key obstacle stopping you from getting to the exit. You will not be able to block it with a bridge during your fling to the exit, so you must deal with it another way.









Room 1

01 First carefully retrieve the bridge from its generator. Remain behind the glass as you do it to remain safe. Then place your exit portal so that the bridge is coming out at the same level you are standing on. This will block the view of the turret so you can move along the ledge. Then stand behind the glass and wait for Blue to place his portals.

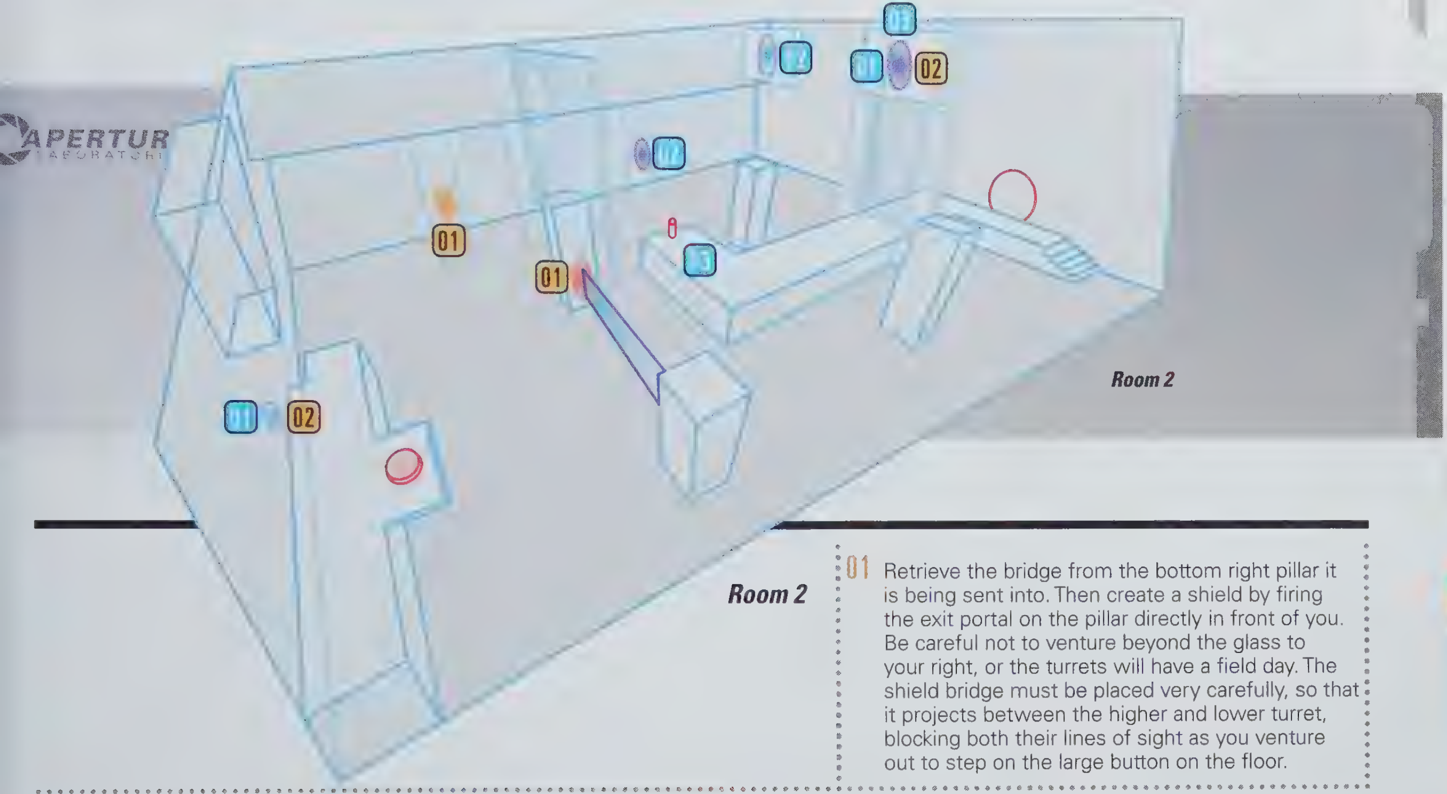
01 Place a portal on the back wall and then another one up to the left so that it is possible to reach the area with the Aerial Faith Plate.

02 While still behind the glass, you should move your shield bridge to cover Blue, the second he passes through his portals to get to the Faith Plate.

02 Place a portal directly above the plate, and a second one on the diagonal surface to the side of the turret. Step on the Aerial Faith Plate to activate it, and then as you come flinging out of the portal, you will automatically pick up the turret. Drop it into the goo so that the path is clear for Orange to make his way across.

03 You can now just portal up to the alcove and follow Blue to the exit by stepping on the faith plate.

Room 02 Summary | This area has turrets on pillars dotted around the room to impede your progress. These turrets must be dislodged by redirecting the cubes that are released towards them.



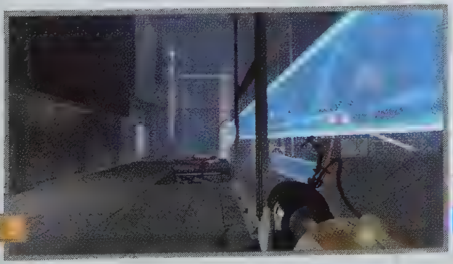
01 Retrieve the bridge from the bottom right pillar it is being sent into. Then create a shield by firing the exit portal on the pillar directly in front of you. Be careful not to venture beyond the glass to your right, or the turrets will have a field day. The shield bridge must be placed very carefully, so that it projects between the higher and lower turret, blocking both their lines of sight as you venture out to step on the large button on the floor.

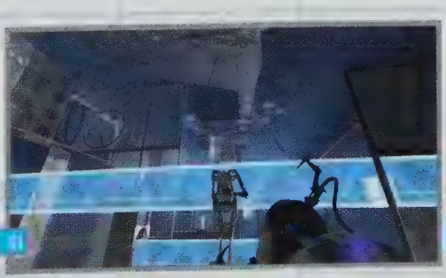
01 When Orange steps on the button, it will reveal a portalable panel at the top of the central structure in the middle of the room. Place a portal on this panel and an exit panel on the wall behind him, so that you can walk through and get to the central structure.

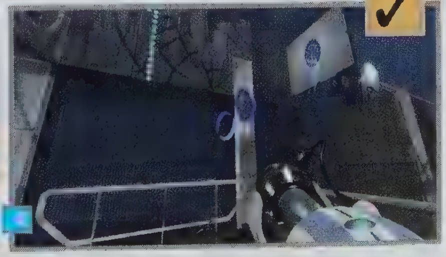
02 This central structure houses a switch that will dispense various objects and launch them through the glass panel that has a hole in it on the left, eventually striking a portalable surface panel. Place a portal onto this surface (press the button once to see where the objects land to know the correct placement for the portal). The exit portal should be placed on the pillar to the left of the leftmost turret that is facing you. Now press the button. The resulting trash flying through the air will knock the turrets into the goo. If you only catch one of the turrets, raise or lower your exit portal as needed to get the other one.

03 Move the exit portal back onto the revealed portalable panels that are above the central area. Press the button again, and the objects will fly back to the starting area, leaving only the Weighted Storage Cube for Orange to collect.

02 Pick up the cube, and place it onto the button. Now, move your initial portal onto the wall behind you and your exit portal on the revealed portalable panels, step through it and come out onto the central structure to join the other player. Step through the Emancipation Grill and exit the chamber.







08

08/08

07_095

This chamber takes place outside the official testing grounds, and as such, the environment you find yourself is quite different. This means the portalable surfaces may not be in the usual easy to see places and should be sought out carefully.

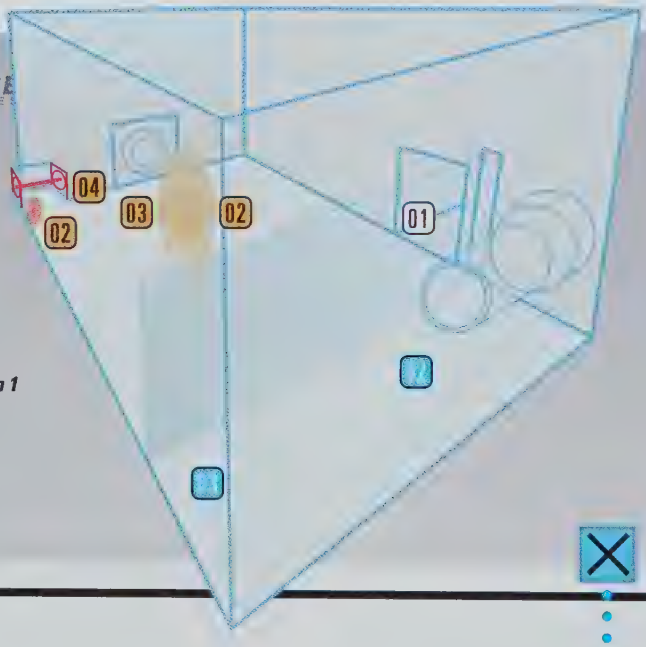
The first room utilizes such a simple technique, you may have forgotten about it after not having used it for so long. Remember, simple solutions are usually the best.

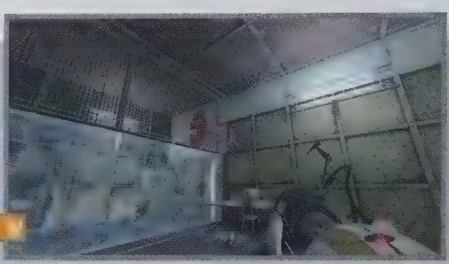
The second room is a fiendish network of walkways and pipes that will force you to re-think your usage of Hard Light Bridges. Remember, you can use them to stop the momentum of any object, not just yourself.

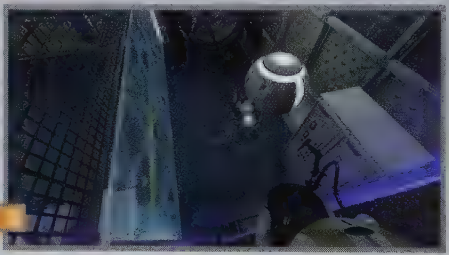
Finally, the third room contains an infamous puzzle, which will no doubt have you scratching your head for a while. It is HIGHLY recommended that you do your best to work this out without any hints, as the feeling of satisfaction you will get after finally solving it is unmatched.

As a bare minimum of a hint, just remember the basic physics of moving objects.

Room 01 Summary | You must simply find a way to deliver the Edgeless Cubes that are behind the Emancipation Grill over to the other side of the room.







Room 1

01 Proceed along the walkways until you get to the small room.

02 Head into the small room on the left and pick up a safety cube.

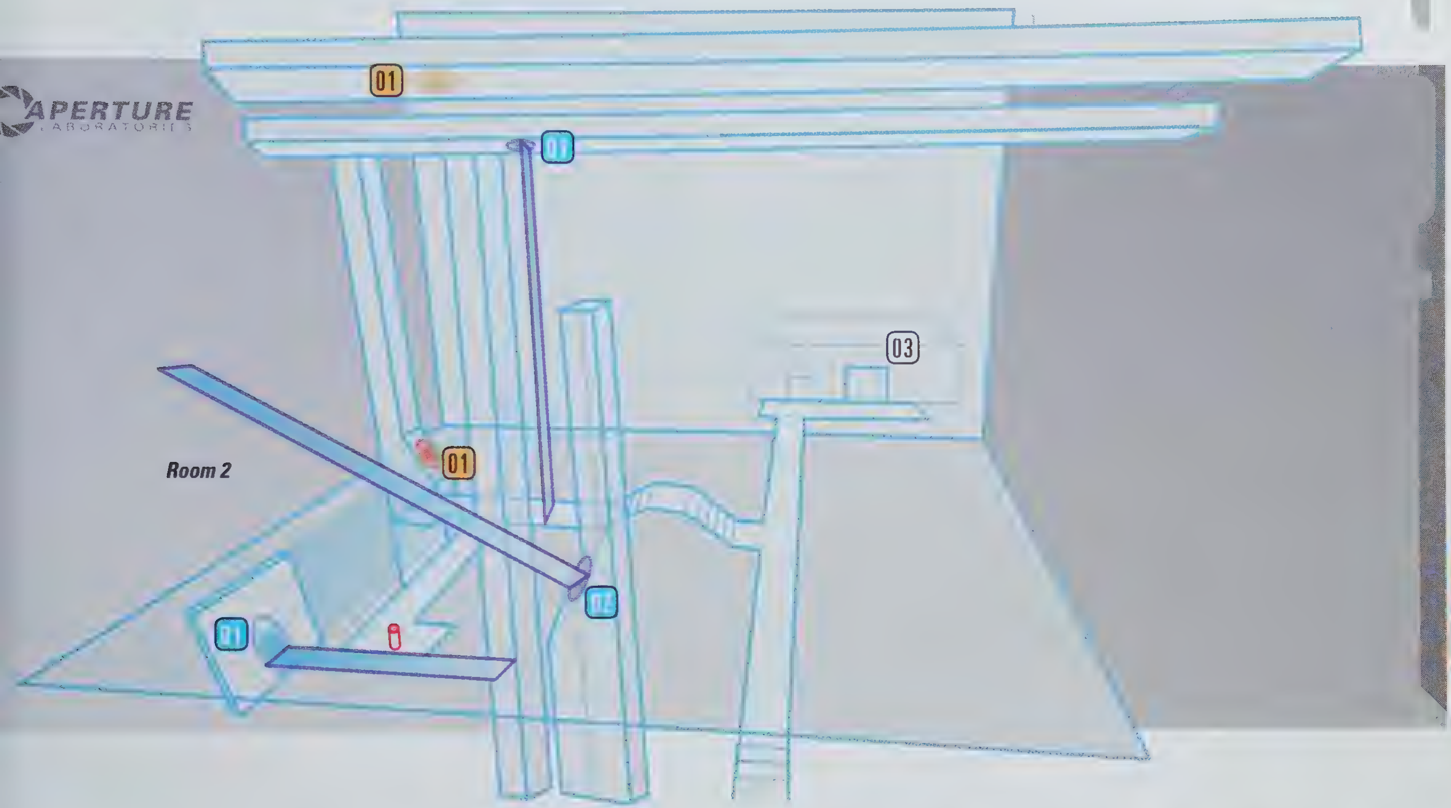
02 Fire a portal onto the surface in the main part of the room, and then fire a second one onto the surface you can see through the mesh near the top of the room on the left, above the Grill.

03 Now step halfway through your portal, so that you are on the edge of the wall looking down to where Blue is holding the cube.

03 Jump up and pass the Edgeless Cube to Orange.

04 Place the Edgeless Cube into the receptacle to the left of the door.

Room 02 Summary | Edgeless Safety Cubes are being launched down into the abyss, so you will need to redirect them. Follow the trajectory of the cube and use portals and Hard Light Bridges to redirect the cube onto the other side of the Emancipation Grill.



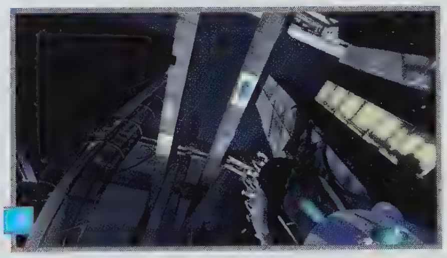
01 Follow the walkways around until you see a bridge generator conveyor belt. Press the button near it to freeze it so you can retrieve the bridge. Place the exit portal on the portalable surface on the vent on the ceiling. Aim for the far right one. This will form a vertical bridge which will block the flying Edgeless Cube and redirect it back.

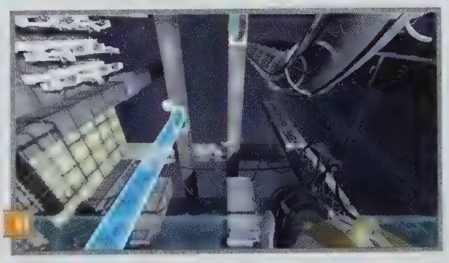
Room 2

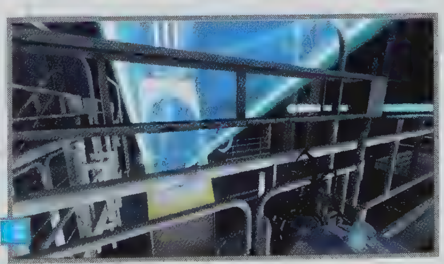
01 Head through the Emancipation Grill and place a portal on the low diagonal surface that the redirected Edgeless Cube bounces down onto. A second portal should then be placed on the left of the two conduits as you look up. The Edgeless Cube will then bounce down into the portal on the diagonal surface and drop down from the second portal above.

02 Time a portal so that you create a wall using the Hard Light Bridge via the diagonal surface to the left of the catwalk, which will redirect the cube and create a slope for it to roll down along. You can then go over and pick up the Edgeless Cube once it comes to a stop and carry it up to the receptacle.

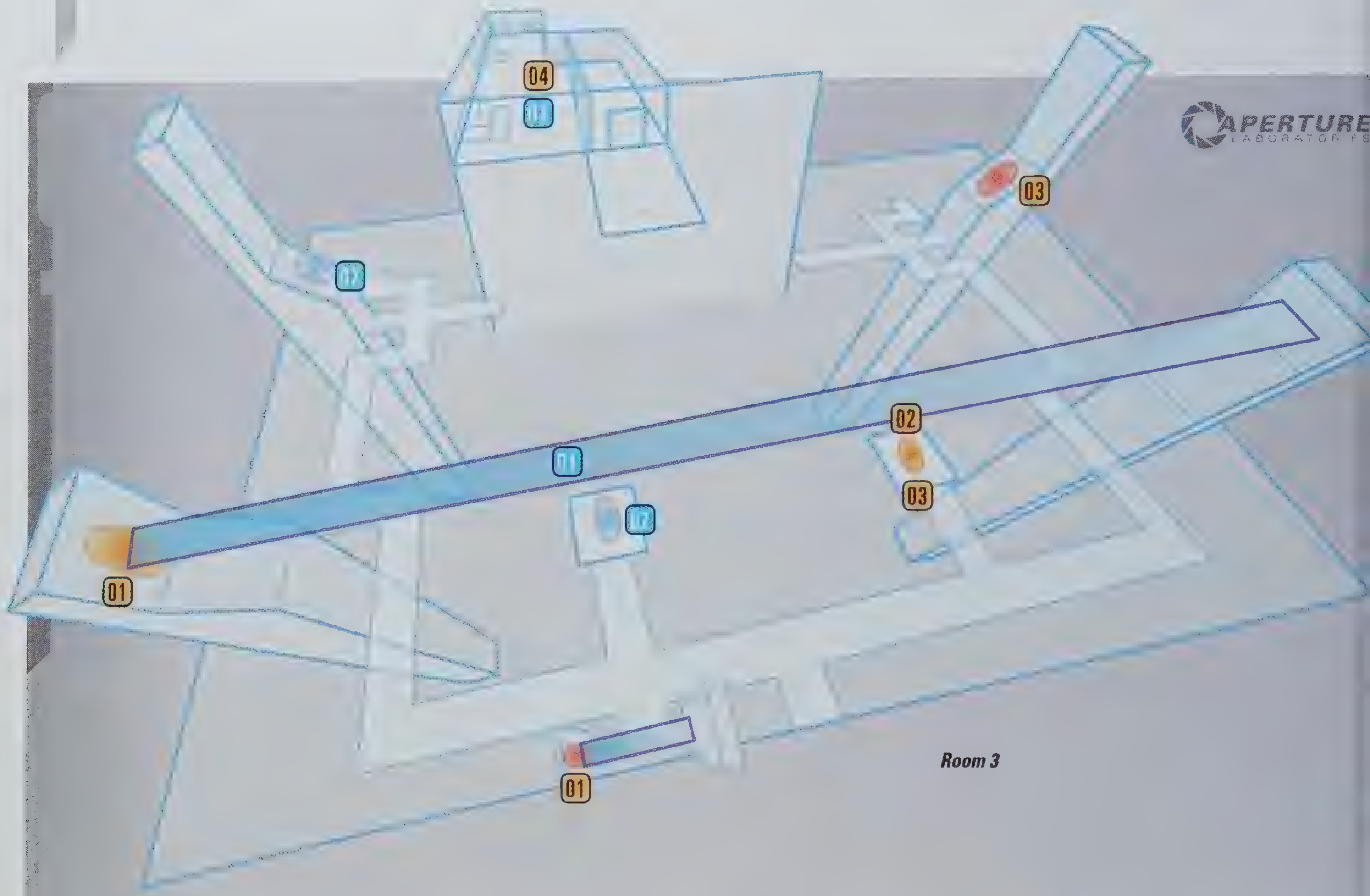
03 Go through the Emancipation Grill and then both players will need to activate a two-man timed switch to reach the next area.



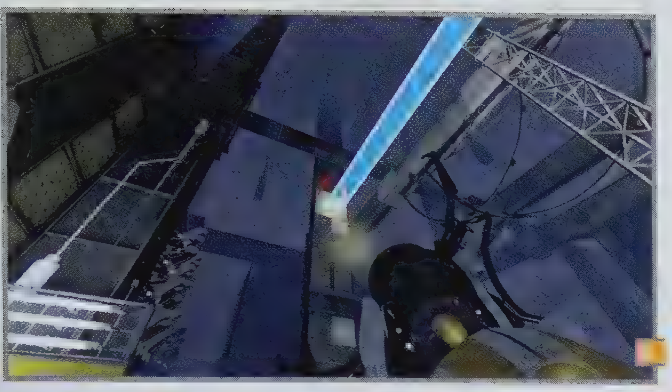


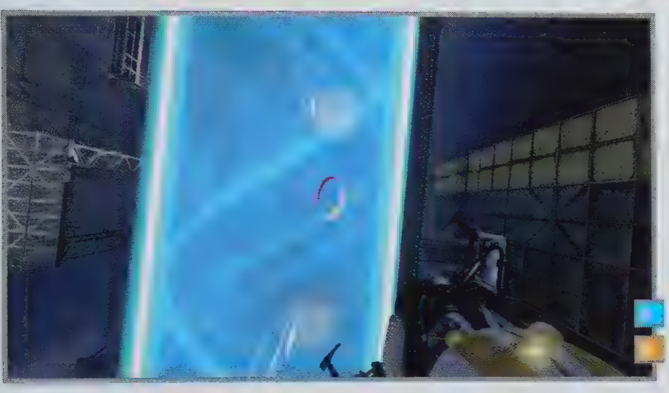


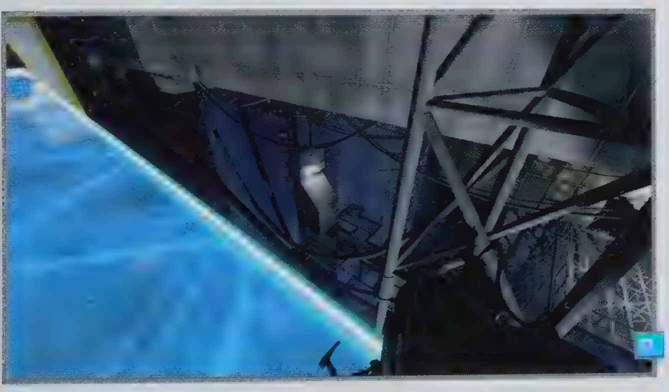
Room 03 Summary | The exit on the central platform must be flung onto using the diagonal portalable surfaces available on either side of the platform. Use the height between the high Light Bridge and the portalable floor to create the momentum for the fling, then find a way to halt your momentum in mid-air to land on the central platform.

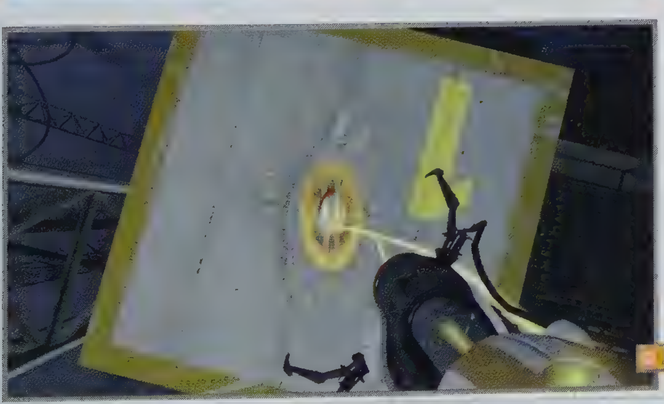


Room 3









Room 3

01 Place a portal on the surface which the bridge is hitting, and then place another on the vertical surface up high on a nearby column. This will allow both players to walk along the bridge and be high above the floor.

01 Both of you should then take up a position directly above the flat surfaces far below that have the numbers 1 and 2 on them.

02 Both of you should then take up a position directly above the flat surfaces far below that have the numbers 1 and 2 on them.

02 Place your first portal on the flat surface directly below you and another portal on the diagonal surface with your corresponding number on. If standing over 2, place it on the diagonal surface to the right of the exit area. If standing on 1, place it on the diagonal surface to the left of the exit area.

03 Now place a portal onto the diagonal surface corresponding to your position, then immediately look down as you are falling and place your other portal on the floor before you hit it. This will create your fling, causing both of you to be flung at the same time, subsequently making you crash into each other directly above the central platform.

03 Head through the Emancipation Grill into the office and pick up the disc which is laying on one of the desks and then place it into the reader to finish the course.

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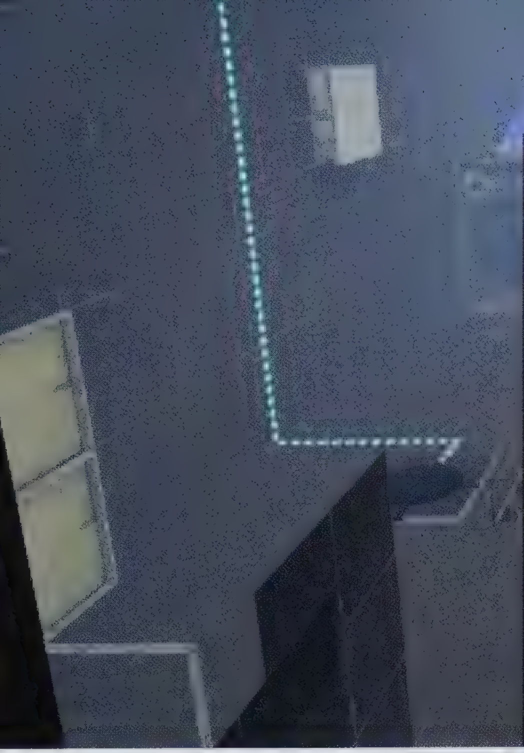
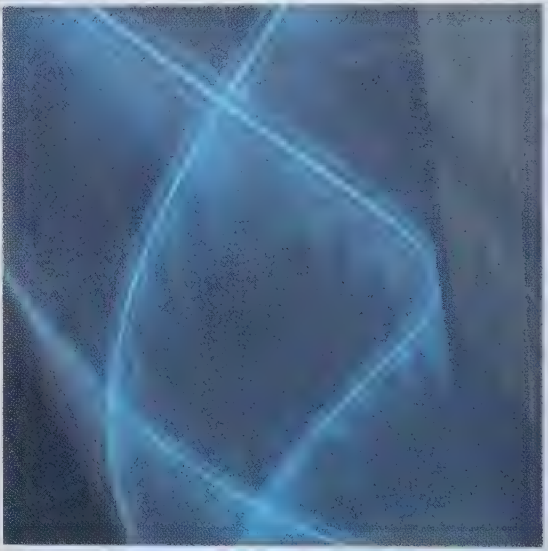


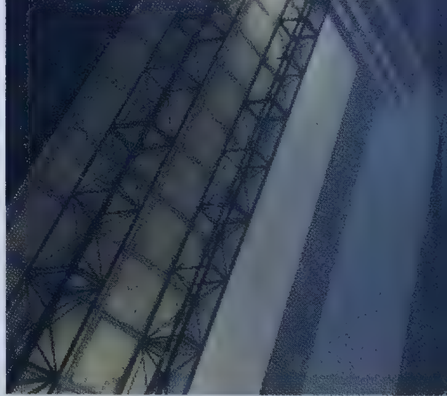
This course again expands on a new concept introduced in Portal 2, the Excursion Funnel. Anything caught in these Excursion Funnels will be propelled either away from (You) or towards (You) the area from which they are currently emanating. This includes players, turrets, cubes and other objects, even various gels. Again, you will constantly be retrieving these funnels via portals and placing them elsewhere, after finding where the funnel generator is located in each room.

In the Central Hub, the door leading to this course can be found on the back wall, down below and to the left of your starting point. The Light Bridge leading to it starts from the central path, but you can jump straight to it by jumping off the very lip of the path you are on.

COURSE 04



EXCURSION FUNNELS

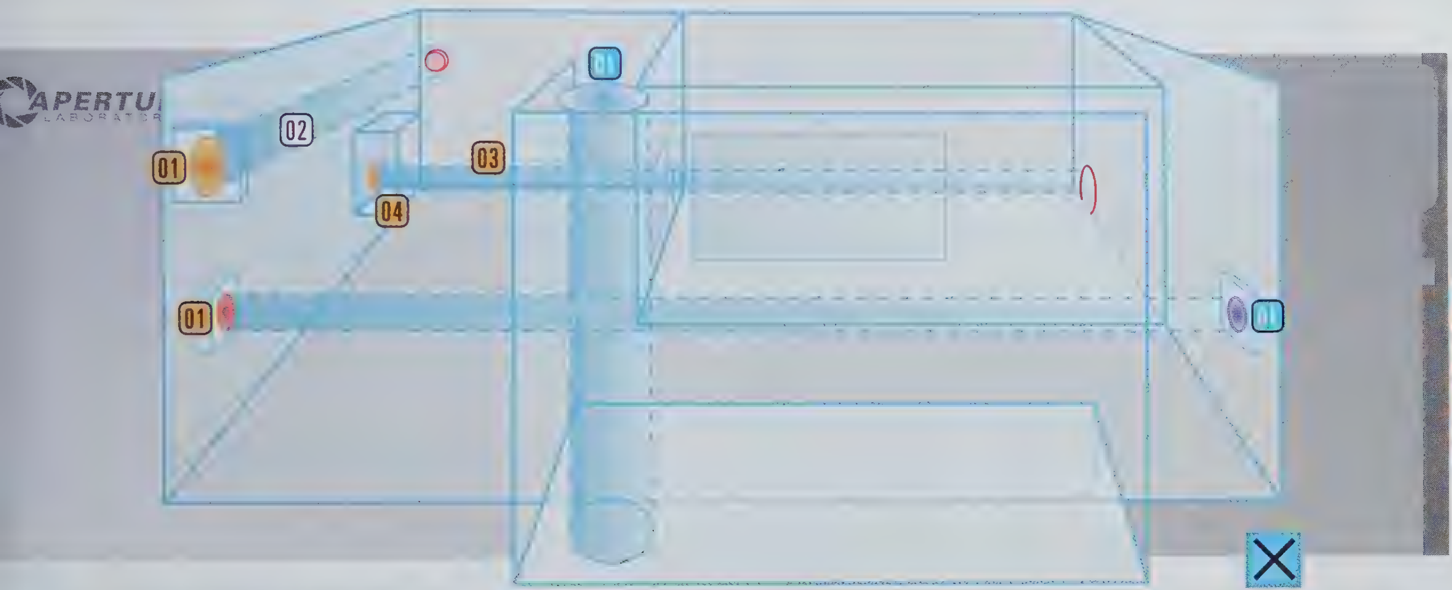


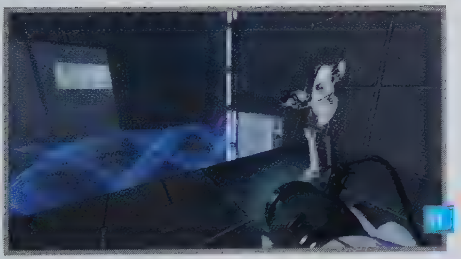
01

This first chamber is just like the first chamber of other courses, designed to introduce you to Excursion Funnels and how they operate in a cooperative environment. The concept is just the same as moving and retrieving Hard Light Bridges using portals, and for this chamber that's the only technique you will really need to employ. Be wary of the pit below, it's no longer just a harmless corrosive sea of goo, but now a vicious grinder.

07_096

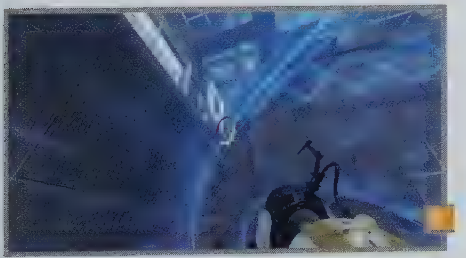
Room 01 Summary | You will need to navigate around the chamber via Excursion Funnels, moving them using your own and your partner's portals. The large button on the far wall will give you access to the exit door, but only if someone stays to hold it down.





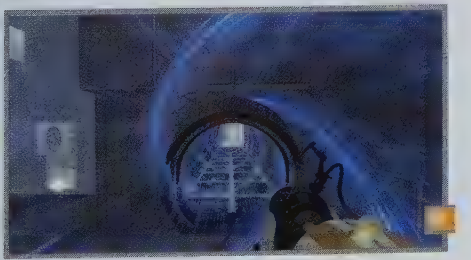
01 Place a portal on the surface above the generator and then a second portal on the surface to the left. This will cause the Excursion Funnel to be extended above the pit. Now jump into the funnel.

01 Enter the Excursion Funnel and look directly in front of Blue and retrieve his funnel with your own portal. The exit portal should be placed on the portalable surface above and to the left of that one.



02 If done correctly, the Excursion Funnel should now be leading directly to the large red button on the wall and both players should continue along until they are close to the button.

03 Pressing the button will cause a platform to be formed directly below this Excursion Funnel. Drop out of the Excursion Funnel onto the platform below while Blue continues to hold the button down.



04 Enter the room so that you are on solid ground and move your exit portal onto the surface directly opposite the door so that a new Excursion Funnel is formed. Blue will drop down into this new Excursion Funnel and be carried safely above the grinders into the exit room.

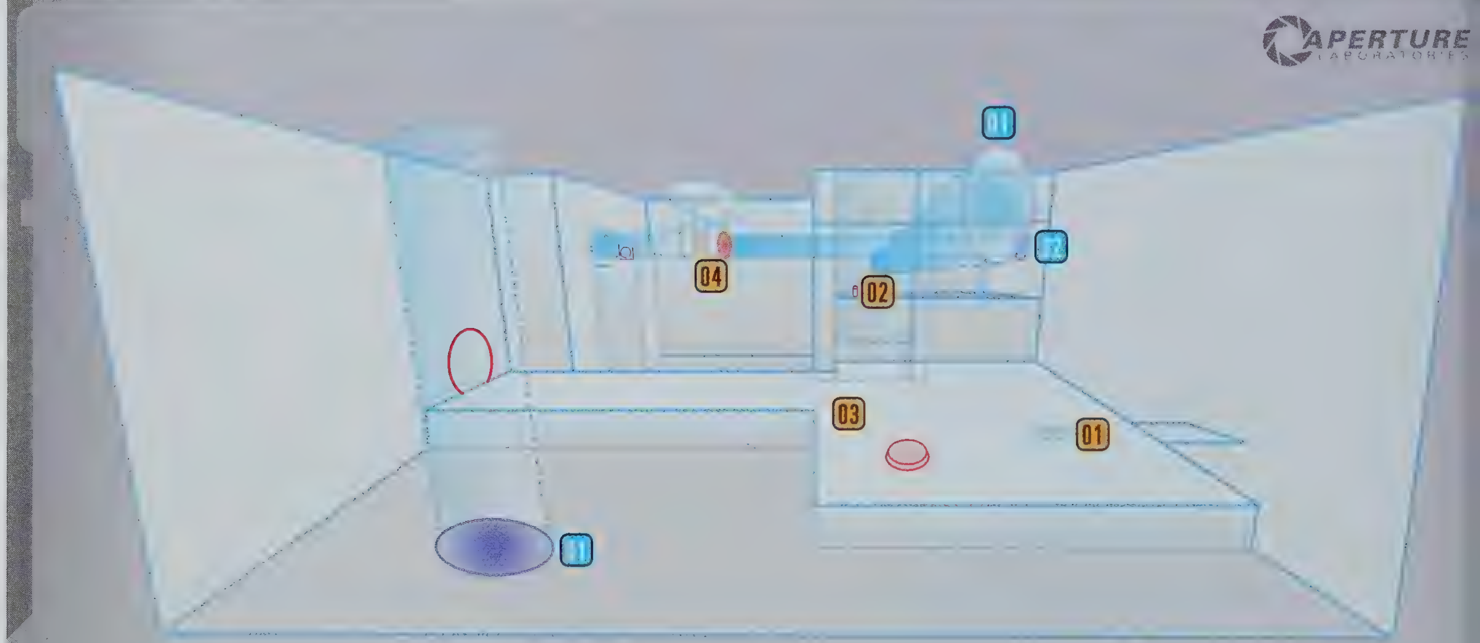
02

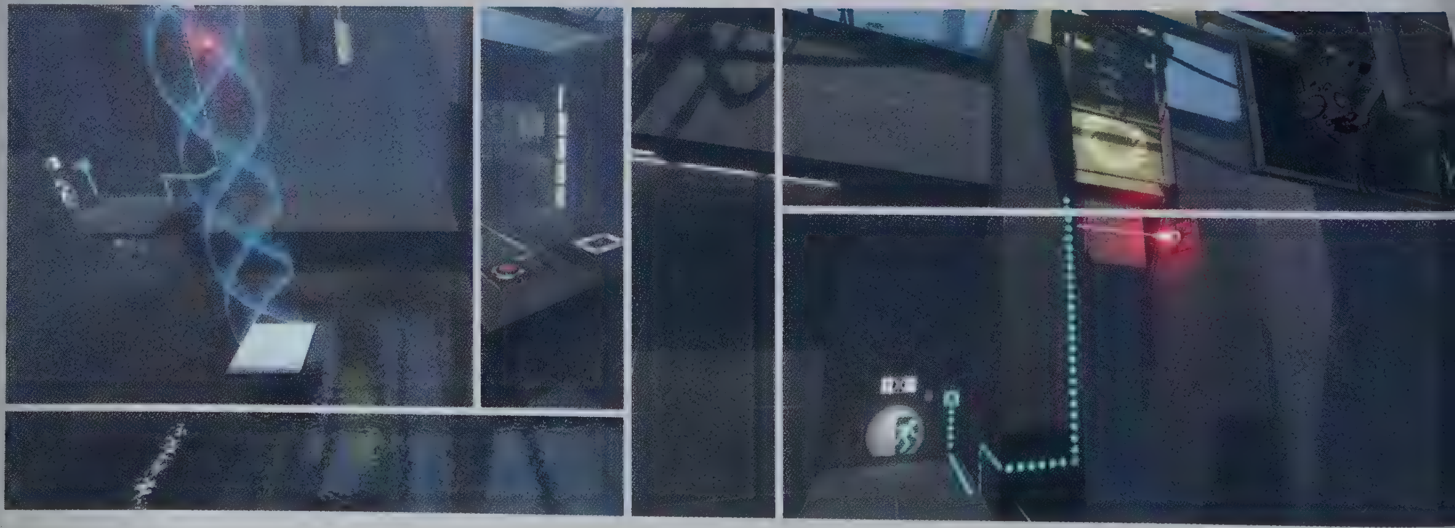
02/09

This chamber contains our old friend, the Aerial Faith Plate. However, its purpose in this chamber is not to transport you to another area of the chamber, but for you to gain height so you can reach something you ordinarily would not be able to. You will also be presented with a cube receptacle that you cannot yourself reach to place a cube into, forcing you to consider alternative means of transport.

Room 01 Summary | The button causes a number of glass panels on the right to retract so that players can fire portals through the newly created opening. The Edgeless Cube must be funneled into the receptacle to open the door, and portals must be used to allow the cube to pass through the portalable panel suspended in the air.

07_097





01 Place a portal on the surface below the Excursion Funnel generator and then place a second portal on the surface on the left hand wall so that the Excursion Funnel which is created can pass through the first Emancipation Grill. Then stand on the large floor button that lowers the glass panels in that room.

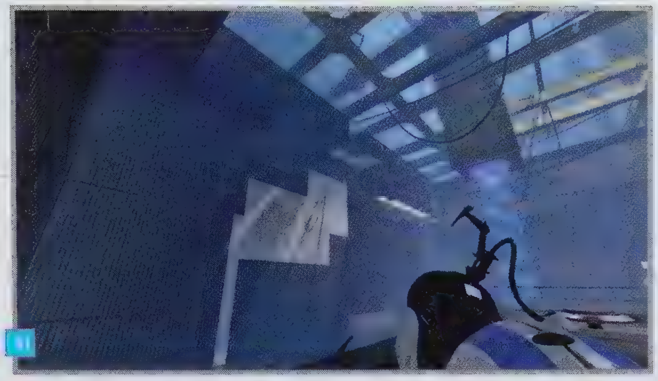
01 Step onto the Aerial Faith Plate to launch yourself up into the Excursion Funnel, which will carry you through the Emancipation Grill to the elevated room on the right.

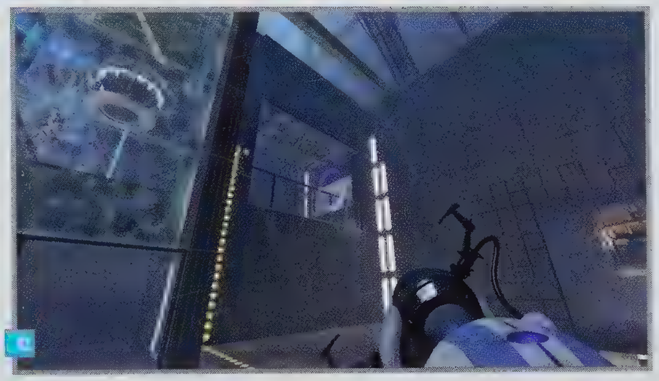
02 As soon as Orange is in the room, fire your exit portal onto the surface at the back of the room to send a new Excursion Funnel along the length of the room towards a set of suspended panels. It should extend directly under the Edgeless Cube dispenser.

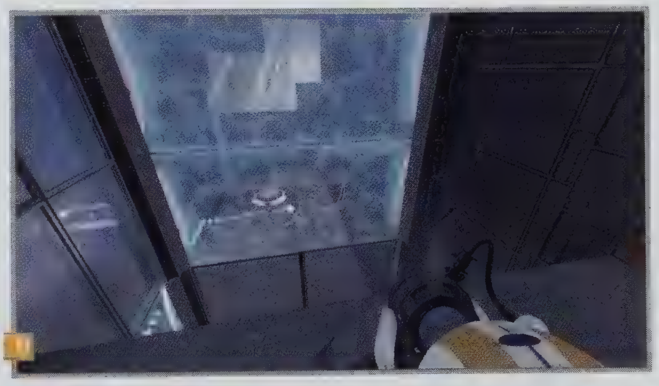
02 Press the switch in the room to activate the Edgeless Cube, which will then drop it into the funnel.

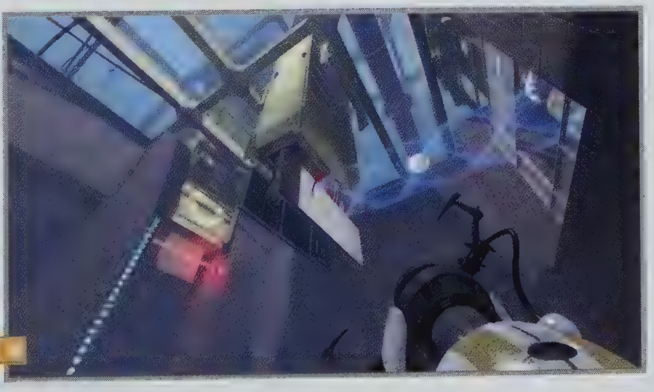
03 Exit that part of the room by dropping down through the Emancipation Grills back to the starting area.

04 Head around to the suspended panels near the exit and opposite the safety cube receptacle high up on the wall, and place one portal on either side so that the Edgeless Cube can continue along its path. Eventually it will enter the receptacle and both players can proceed through the exit.









✓

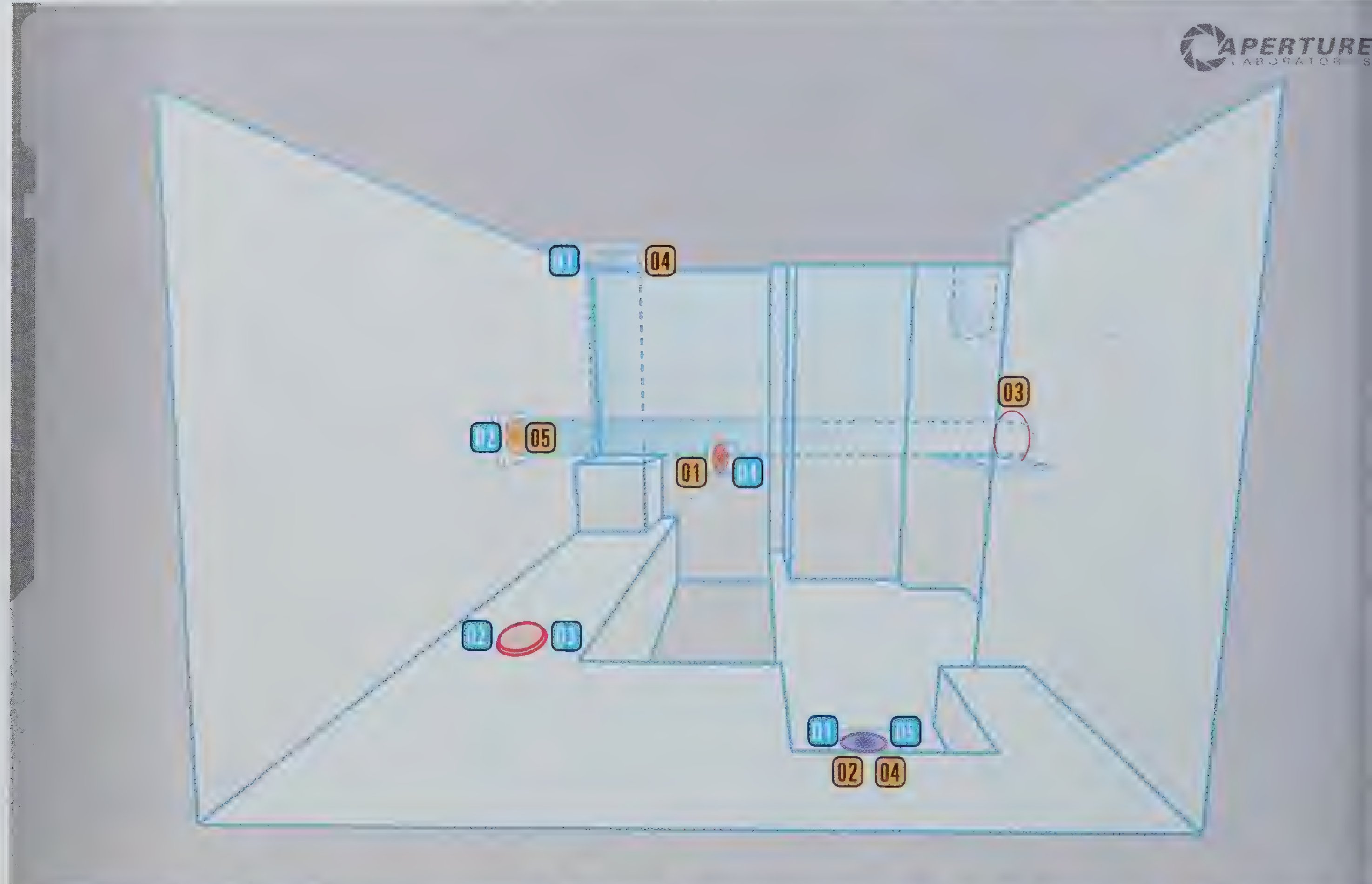
03

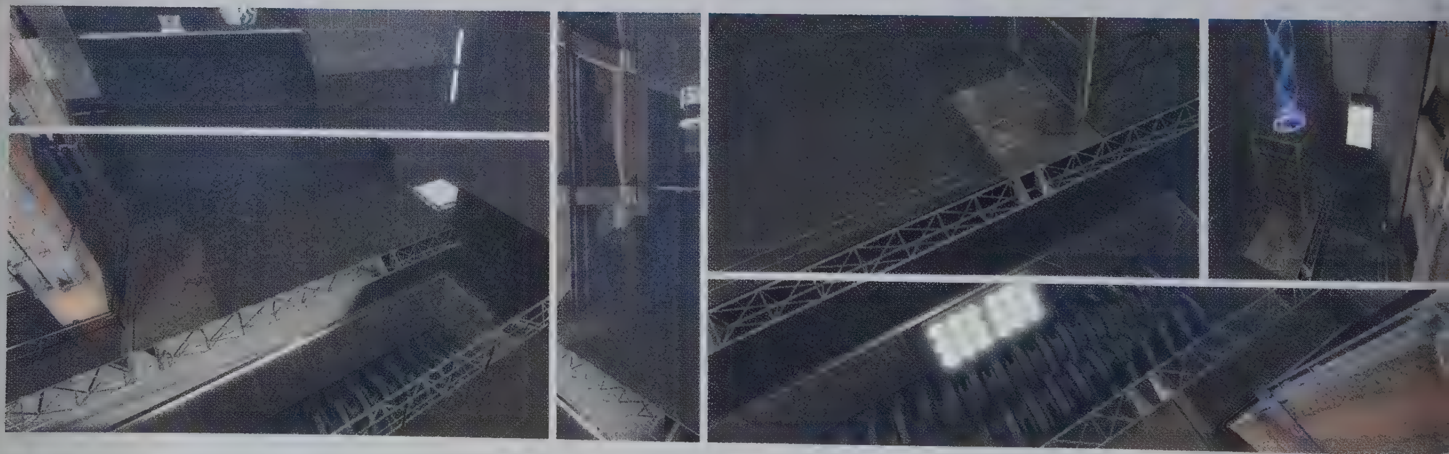
03/09

This chamber will combine some velocity puzzles that you know and love with the usual funnel redirection shenanigans. The purpose of the large floor button will become apparent when you attempt to fling out of the angled portalable surface. If you are wondering how to generate the momentum necessary to fling, remember that all you need is sufficient height to create a fling in any situation.

07_098

Room 01 Summary | The solution here is to create a fling via an upwards funnel to get one player across to the exit platform. You will have to stop the momentum of the flung player and generate a funnel for him to fall into.





01 Start by retrieving the funnel that is being generated in the pit of grinders and then place a second portal on the small area on a lower section of the floor to the right. This will create an Excursion Funnel going up from the floor to the ceiling.

01 Step into the Excursion Funnel so that you are carried up to the ceiling. From there fire a portal to the angled surface panel on the far wall and be ready to fire another portal onto the floor beneath you.

02 Stand on the large button on the floor, lowering the ceiling panels, and then fire your exit portal on the left wall, causing the Excursion Funnel to be redirected to the right.

02 This will cause you to drop to the floor, fire a portal onto the floor so you are flung into the Excursion Funnel.

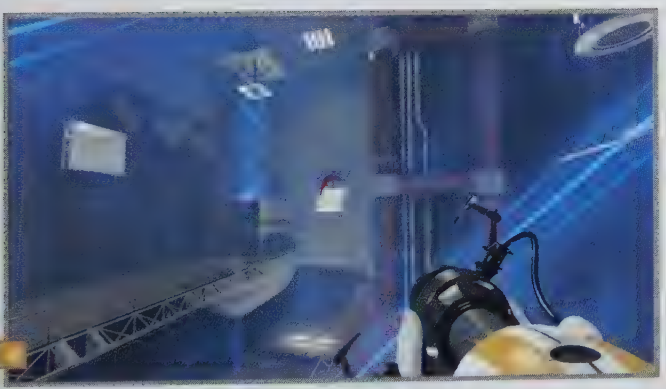
03 When you move across, you can drop the cube for Blue.

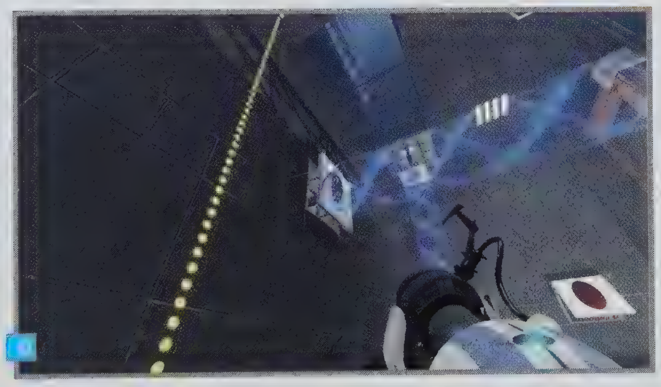
03 Pick up the cube and put it on the button.

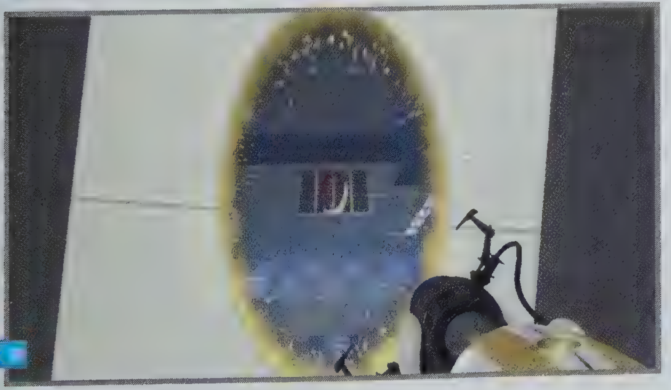
04 Retrieve the funnel from where you are, and place the exit portal on the same floor surface that causes the funnel to go upwards.

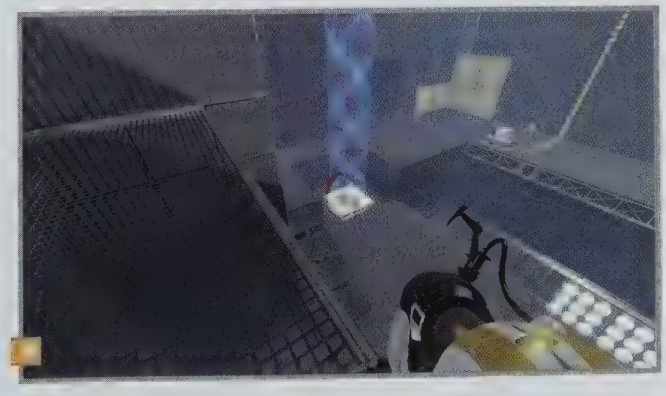
04 Step into it and travel a good distance upwards. While you are going up, place a portal on the angled surface, and once Orange moves the funnel, fire a portal onto the ground as you are falling.

05 Move the portal that is retrieving the funnel onto the angled portalable surface on the right, and Blue will be flung into the funnel where he can join you to finish the chamber.









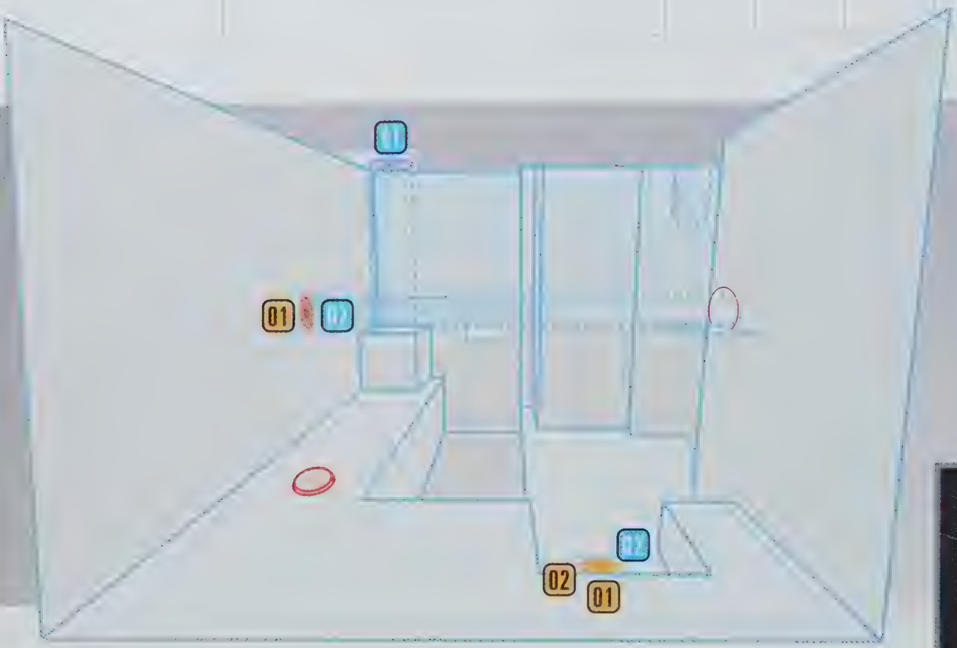
03

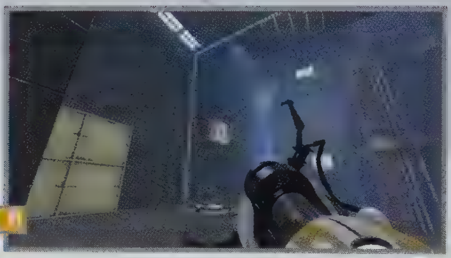
03/09

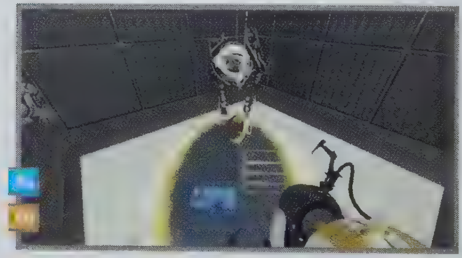
Advanced Solution

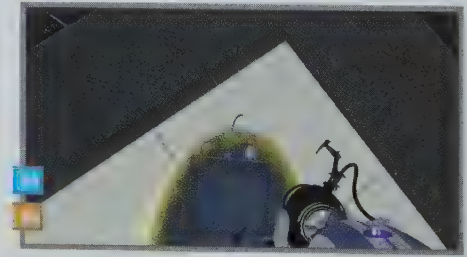
This chamber has an alternative solution that literally cuts the required time to complete it in half!

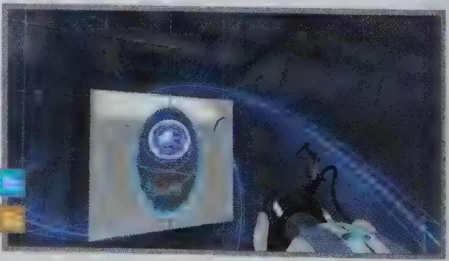
07_099











02 *Begin by retrieving the funnel with your first portal.*

01 *Fire your first portal on the surface opposite the exit, and another on the floor panel.*

05 *The next part is the final, difficult step to completing the chamber. Both of you should stand next to Orange's floor portal, at either end of the oval shape of the portal. Blue should stand at its top, facing away from it, while Orange stands at its bottom, facing towards it.*

Now, both of you must walk into the portal at the exact same time. You might consider using the Countdown Timer to absolutely synchronize your timing Make sure you are facing the same way when you are both entering, so Blue will be walking backwards to enter it, while Orange will be walking forwards, as per the screenshot. As soon as both of you are through, Blue should overwrite Orange's wall portal that they both just came through with his second portal, creating a funnel. Both of you should get caught in this funnel and be carried to the exit.

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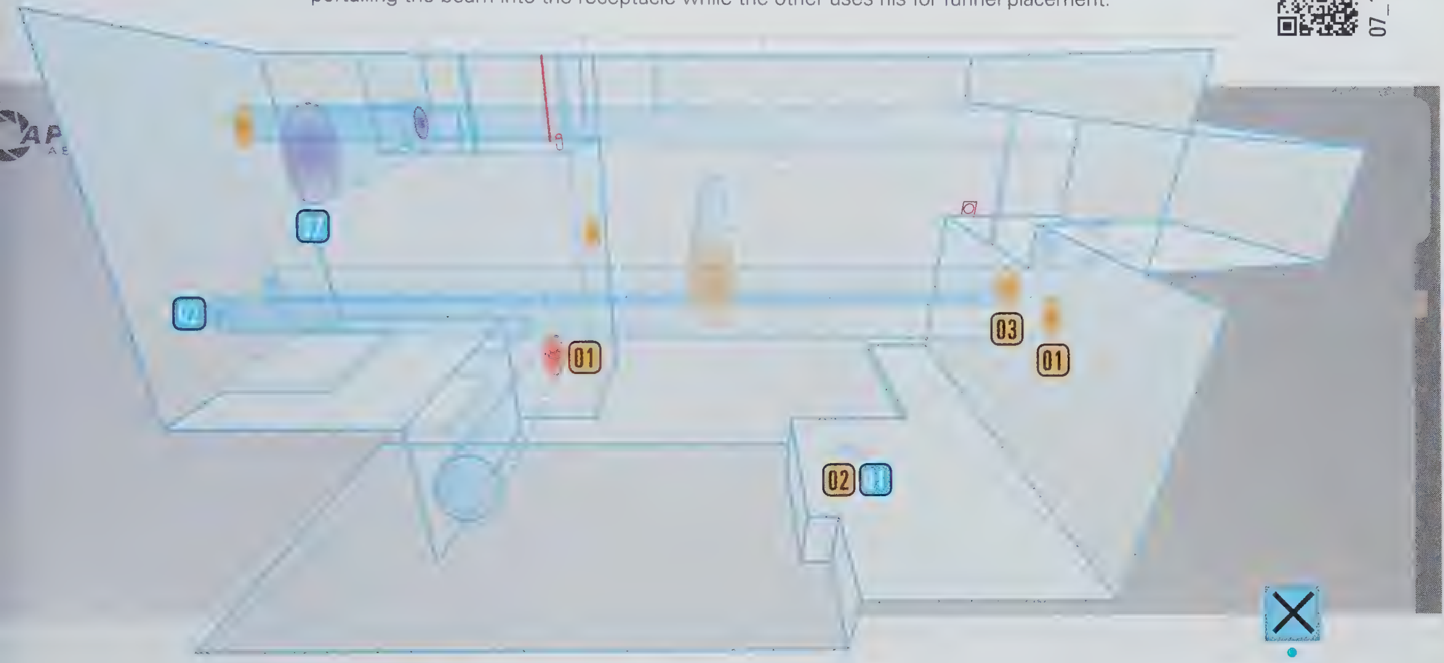
04

04/09

This immense chamber may seem overwhelming at first. Key elements are Aerial Faith Plates and some Excursion Funnel redirecting, but spiced up with some Thermal Beams. This inherently presents you with a problem; you need all four portals of both characters to generate enough funnels to move you around, but you also need 2 portals to redirect the Discouragement Beam into its receptacle. You will need to consider creative ways to move from funnel to funnel without using unnecessary portals, while still getting both players to the exit. Use every inch of the portalable space given to you.

Room 01 Summary | This is a complicated room that must be navigated with funnels. The exit door can only be accessed after firing a Thermal Discouragement Beam into the receptacle near the exit. The beam is on the other side of the room, so one player's portals must be reserved for portalling the beam into the receptacle while the other uses his for funnel placement.

07_100



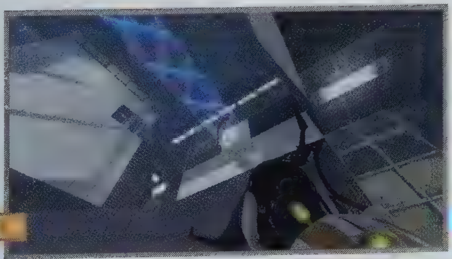
01 Both of you should now step on the Faith Plate and launch into the funnel.

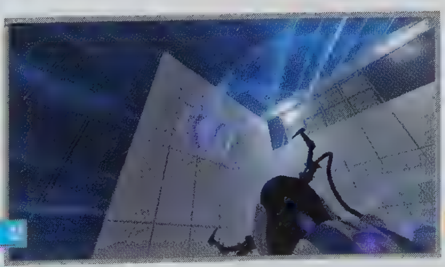
02 Place your first portal at the end of the Excursion Funnel and then an exit portal up high on the left, so that the Excursion Funnel gets redirected into the small room that houses the switch to activate the cube dispenser.

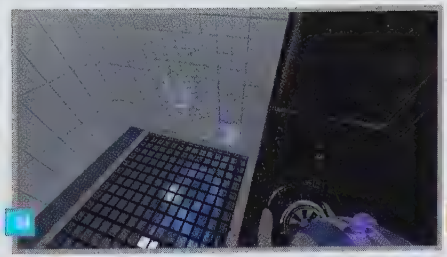
01 Place a portal on the opposite wall to the Excursion Funnel generator and then place an exit portal on the wall behind the Aerial Faith Plate. If done correctly there should now be an Excursion Funnel running directly over the Aerial Faith Plate towards the wall on the opposite side of the room.

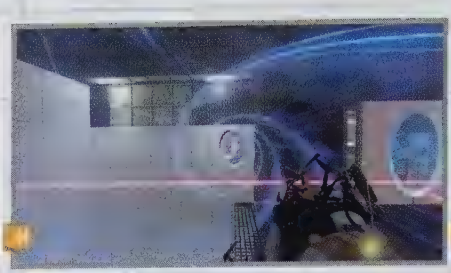
02 Both of you should now step on the Faith Plate and launch into the funnel.

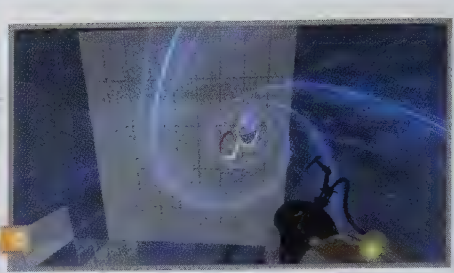
03 Once you have reached this room, get out of the funnel and step out onto the platform that overlooks the main room. Move your exit portal to the left of the first one, so the funnel is extended below the Discouragement Redirection Cube dispenser that is in the middle of the room.

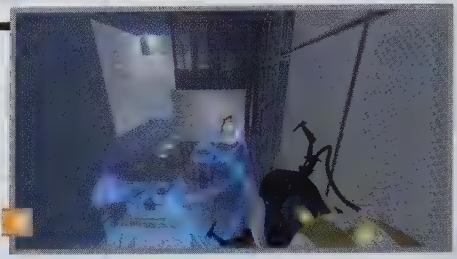








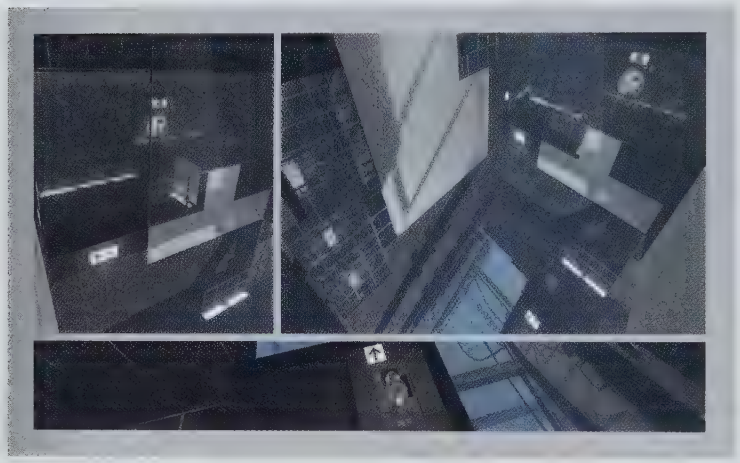




03 Now press the switch in the room to drop the cube into the Excursion Funnel.

04 You can adjust the location of your exit portal now to where the funnel is hitting the wall, which should send it back through the first portal and send the cube into the small room.

05 Use the cube to redirect the beam onto the portalable surface on the wall in the room and then place one of your portals there so you can retrieve the beam. You won't be firing your exit portal until you are on the other side of the room.



Room continued

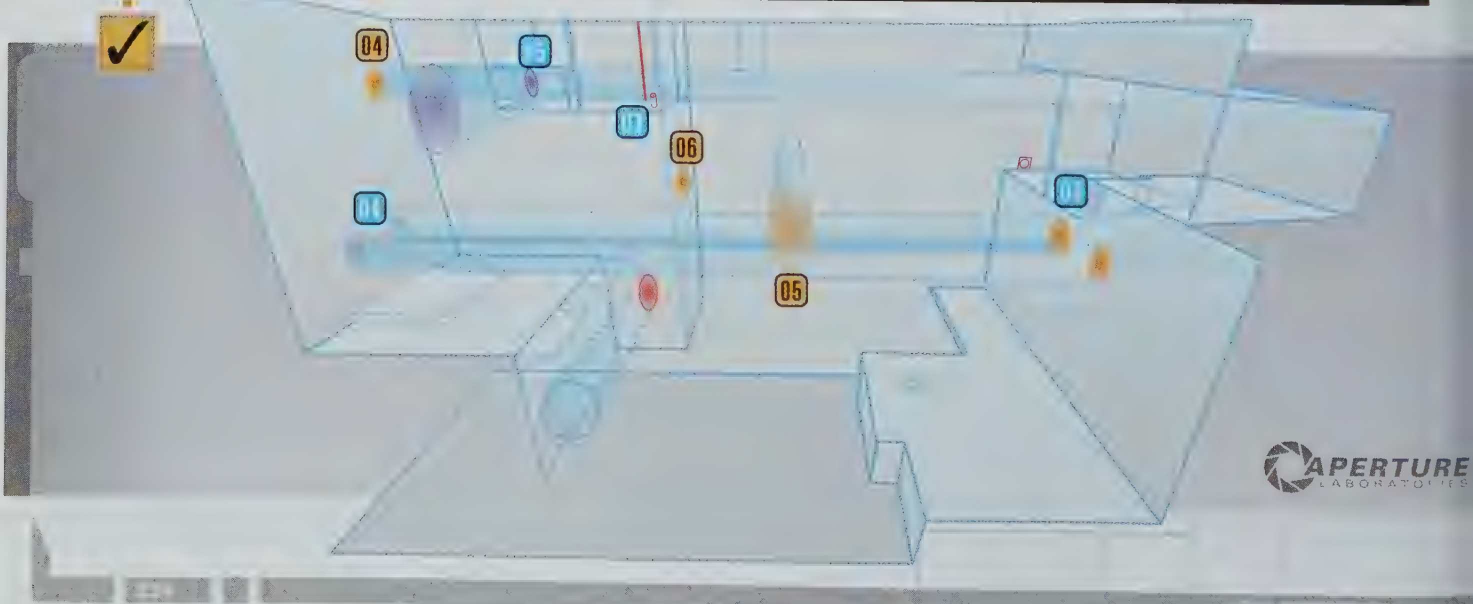
04 Now both of you should step out onto the outer platform of this small room that overlooks the main area. You should fire a new exit portal at the wall to your immediate right, making sure both players are caught in the funnel right next to each other, and are traveling back across the room.

05 Once both of you have traveled far enough along the funnel so that you are in line with the two large white walls on either side of the room near the first Aerial Faith Plate, change the position of the exit Excursion Funnel so that it is going between the two walls. At this time both players traveling in the Excursion Funnel should safely drop down into the new Excursion Funnel and start moving to the right-hand side.

06 Once you are in line with small patch of white wall just below the Thermal Beam room, change the location of the exit portal to that wall so that both of you drop down into the new Excursion Funnel below and get carried over to the area with the Thermal Beam receptacle.

06 Now both of you can step out into this room. Then finally fire your exit portal on the white wall opposite the Thermal Beam receptacle so that the Thermal Beam gets redirected straight into it. Make sure you fire the right portal! Then walk up the new staircase that appears to finish.

✓



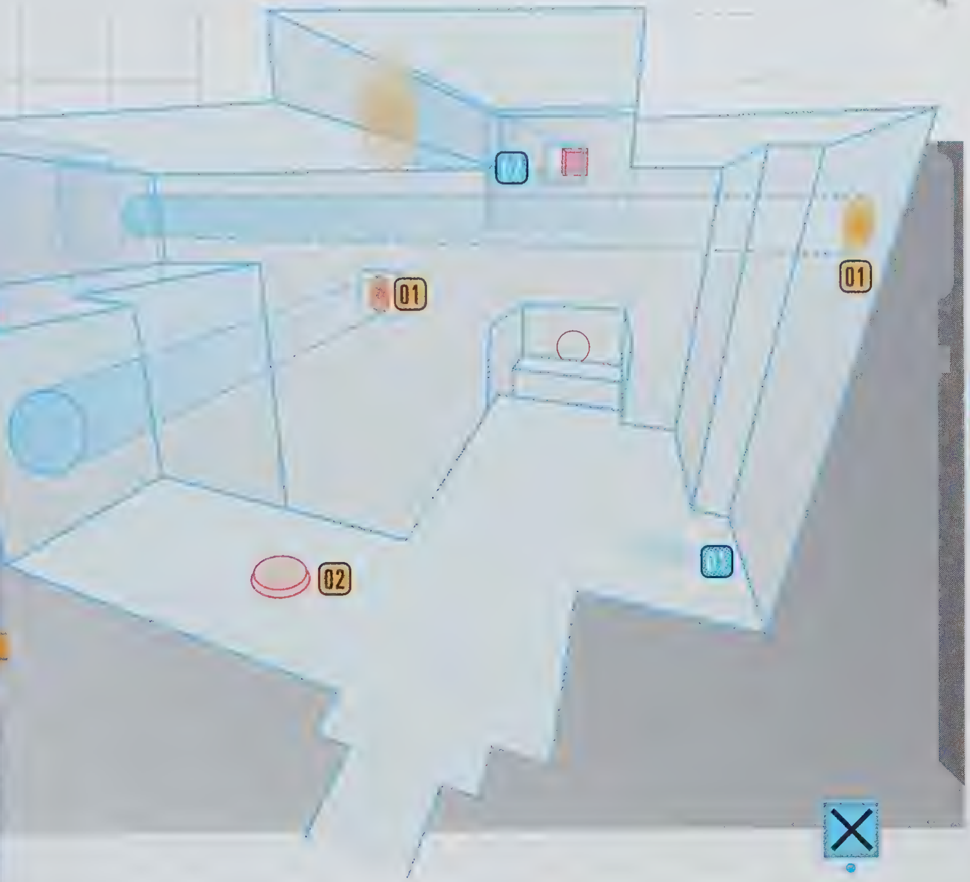
05

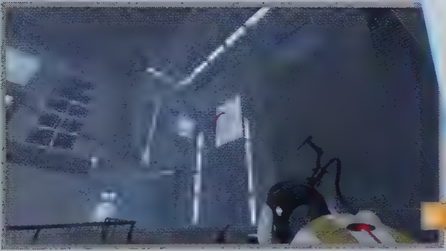
05/09

07_101

This chamber is similar to chamber 02; in that you are presented with a receptacle or button you cannot reach yourself and must find an alternate means of reaching. The difference here is the giant pit of grinders below that will make this task arduous. Remember that the same portals you use for retrieving and moving a funnel can also be used for transportation, thanks to polarity reversing.

Room 01 Summary | The objective here is to get the cube to press the large wall button via a funnel which will raise a bridge that you can cross to get to the exit door. You must reverse the polarity of the funnels to get the cube from its starting location.





01 Start by placing a portal on the wall opposite the Excursion Funnel generator, and then place an exit portal on the block of white panels up high on the wall.

01 Step onto the Aerial Faith Plate and follow the Excursion Funnels to reach the ledge with the cube on it. Once you have the cube, step back into the Excursion Funnel.

02 Step on the button to reverse the polarity of the Excursion Funnel. This will send Blue back towards the starting area with the cube.

03 When Blue is just above the original Excursion Funnel generator, reposition your exit portal so that it is on the small block of white panels directly above the entrance to the room. This will allow the Excursion Funnel to flow directly through the small hole in the glass surrounding the cube receptacle. Once you step off the button it's turned back to its original polarity. Now head towards the exit.

02 Wait until you pass through the Excursion Funnel portal and are over the starting area before releasing the cube and dropping out of the funnel. Now join Orange by the exit area, and wait for the cube to hit the button and raise the bridge for you to exit.

06

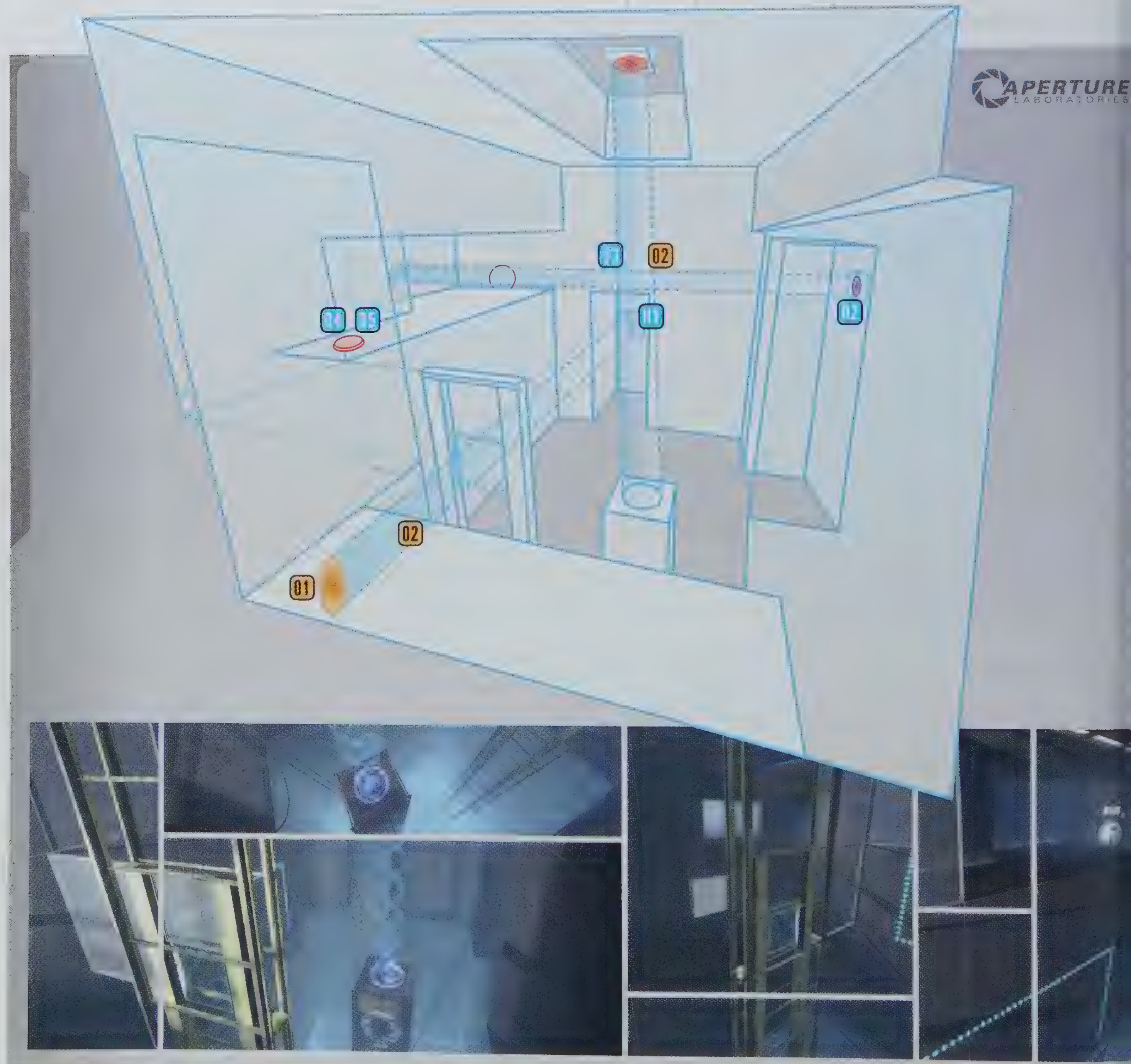
06/09

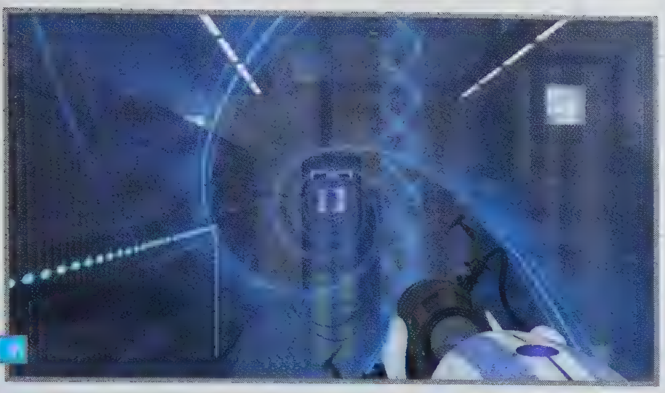
07_102

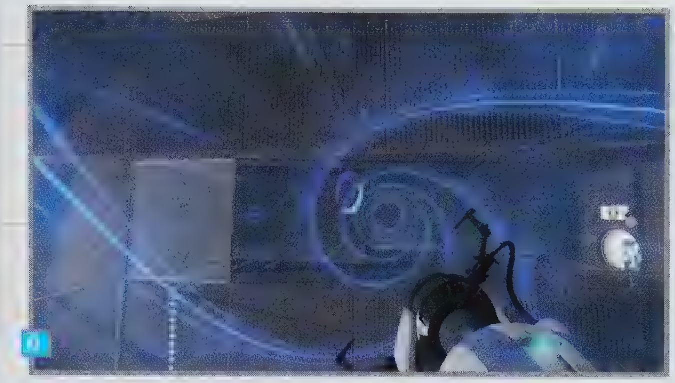
At first glance, this is a sparse room that presents an immediate obstacle to the obvious solution: An Emancipation Grill is covering the path of the only Excursion Funnel you can create to move further into the room. On top of that, there are very few portalable surfaces, and also a crusher trap designed to punish you for going too far in the wrong direction in your funnel. Solve this chamber in two stages, first figure out a way to get one player over to the exit ledge to use the polarity changing button, and then figure out a way to use the button to bring the second player over. Remember the lessons learned in previous chambers, particularly using your Excursion Funnel retrieval portals as a means of transport.

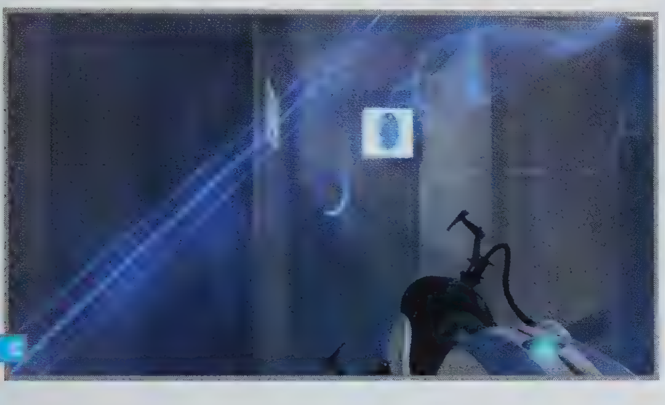
Room 01 Summary | The key to completing the chamber is safely getting one player over to the exit door ledge where you can operate the polarity button to bring the second player over, using a criss-crossing network of funnels that you must jump in and out of to avoid the crusher trap.

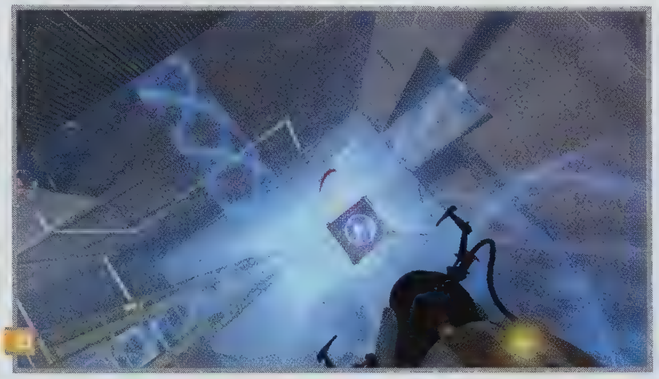
APERTURE LABORATORIES











01 Place a portal on the wall directly above the Excursion Funnel generator to retrieve it, and then place your exit portal on the small group of white panels so that the Excursion Funnel goes through the Emancipation Grill.

01 Step into the Excursion Funnel to start getting carried across the chasm. As soon as you have passed through the Emancipation Grill, fire your first portal onto the section of wall just behind the spike trap.

02 Once you are next to the original Excursion Funnel that is being generated from the bottom, drop out of the section you are in and into that one. While you are heading up, locate the small group of white panels in the alcove and then place your exit portal there.

03 This will extend the Excursion Funnel so that it now reaches the ledge on the left of the room. Before reaching the portal at the top, drop out of funnel you are in and into the new Excursion Funnel that you just created so that you are carried over to the ledge.

04 Once you are on the ledge, reverse the polarity of the Excursion Funnels by standing on the button.

02 Now you can step into the funnel and travel through your own portals.

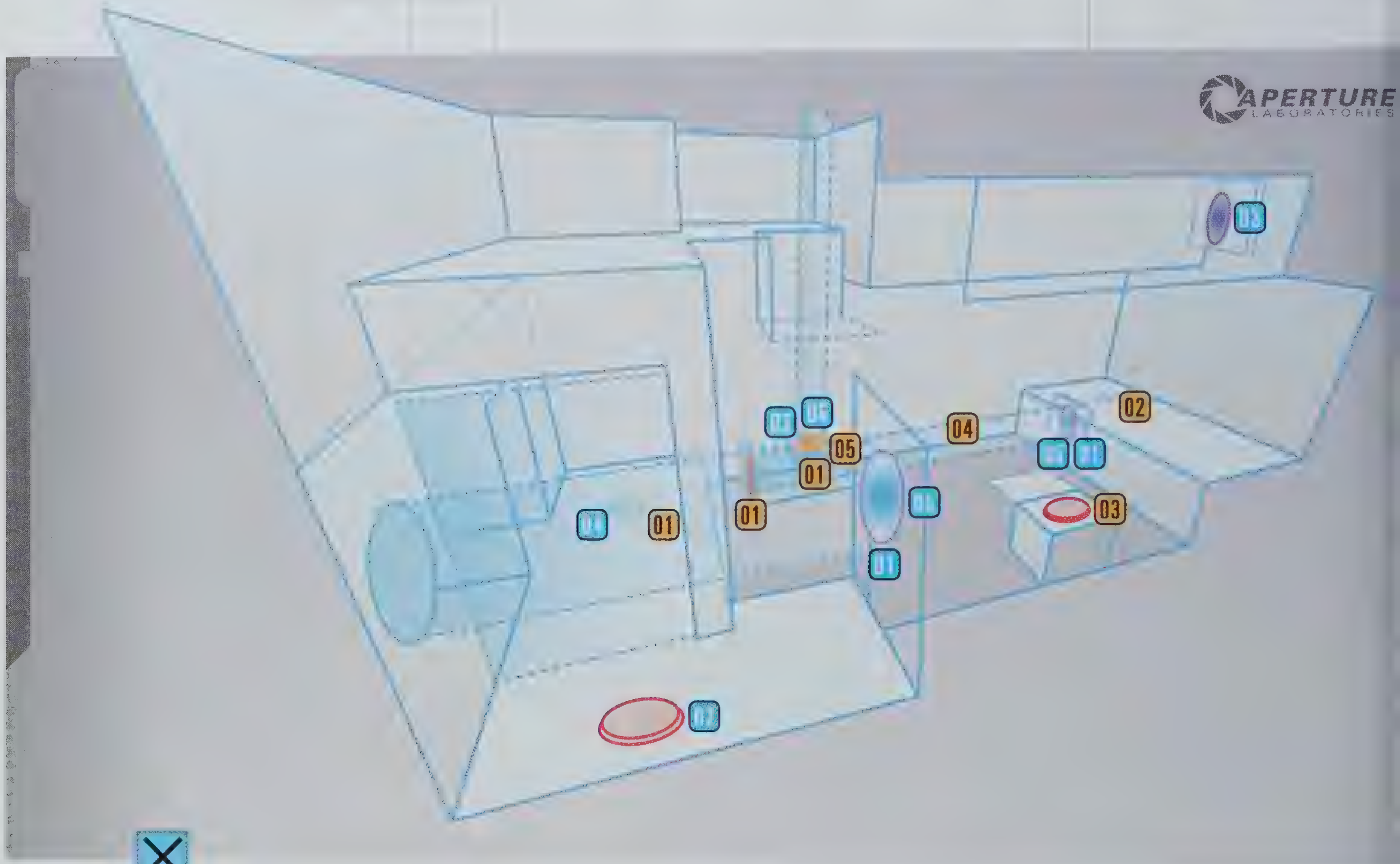
03 When you go through the portal and begin to travel down from the ceiling towards the funnel generator, drop into Blue's horizontal funnel just like he did earlier.

05 Now step off the polarity button so Orange is sent along the funnel towards you. When he gets there, both players can head to the exit.

07

This chamber is all about line of sight. Take your time to familiarize with all aspects and features of the chamber before you try to head straight for the exit. Think about your flight path when stepping on a faith plate and what it would take to get to the central areas. Finally, remember there is more than one way to get up to an area above you, and that once one player gets that, you will have access to different options and will have a different point of view of the chamber.

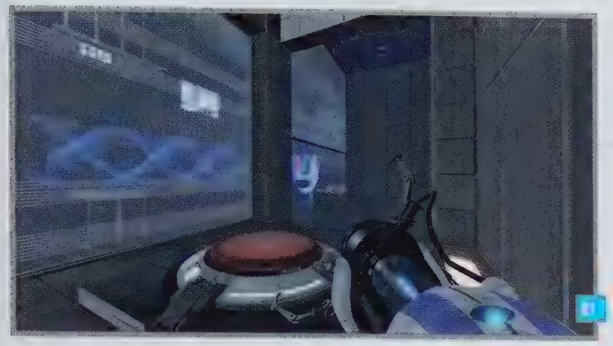
Room 01 Summary | The exit door is an area above this room, through a gap in the ceiling. To get to it, one player must be flung into this area. He can then use Excursion Funnels to bring the other player up too.

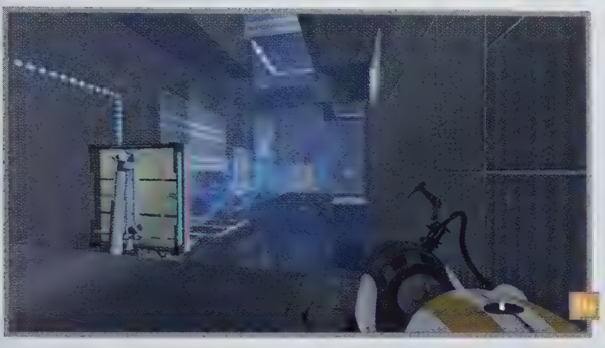


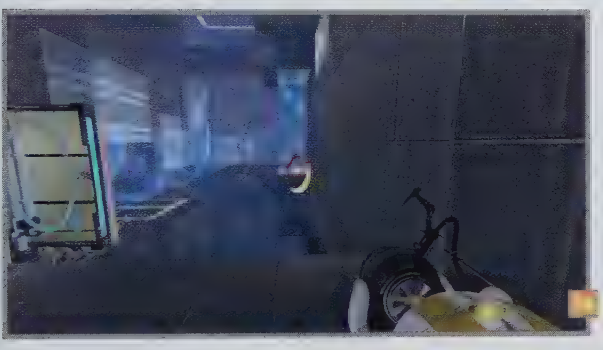
01 Go through the Emancipation Grill on the right and retrieve the Excursion Funnel there with a portal and then fire your exit portal onto the set of white panels on the opposite side of the moat. You should be able to see this panel through a gap in the glass.

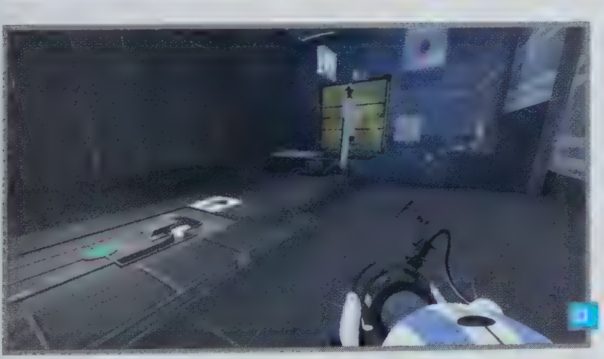
01 Use the Aerial Faith Plate to jump over to the other side of the moat and place your first portal on the set of white panels on the starting side of the moat and then place the exit portal on the floor below the Emancipation Grill on the right, retrieving Blue's funnel and sending it upwards towards the exit area.

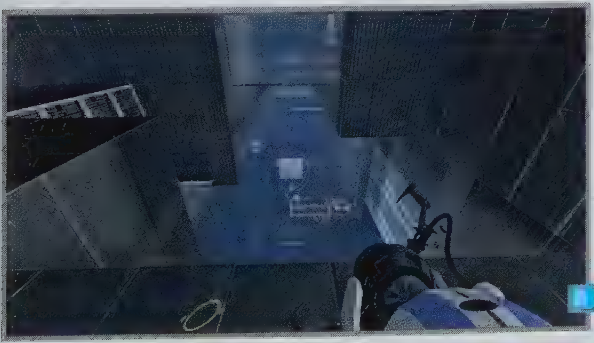
02 Use the Aerial Faith Plate on that side of the moat to launch yourself into the vertical Excursion Funnel you just created and then drop down onto the platform below.











02 Now step on the polarity button to reverse the polarity of the Excursion Funnel.

03 Step into the orange funnel and get carried along to the platform with the large floor button in the center of the moat. Then step on the button, which will expose a section of wall up high that is portalable.

03 You can now pass back through the Emancipation Grill and should place your first portal on the newly exposed panels and then place an exit portal onto the section of floor that is under the emancipation Grill and leads to the upper exit area.

04 Once the portals are in place, step onto the Aerial Faith Plate so that you are flung through the high portal and come flying up through the one on the floor. From this fling you can easily generate enough height to fly up to the ledge with the exit door.

05 Once you are up by the exit you can move along the ledge and look down into the area with the Excursion Funnel generator, and from there you can place a portal on the wall opposite it, retrieving it again. Once the first portal has been placed, an exit portal should be placed on the white panels on the opposite side of the moat below.

04 Now you can step into the Excursion Funnel and get carried along to the first platform that is under the gap leading up to the exit area.

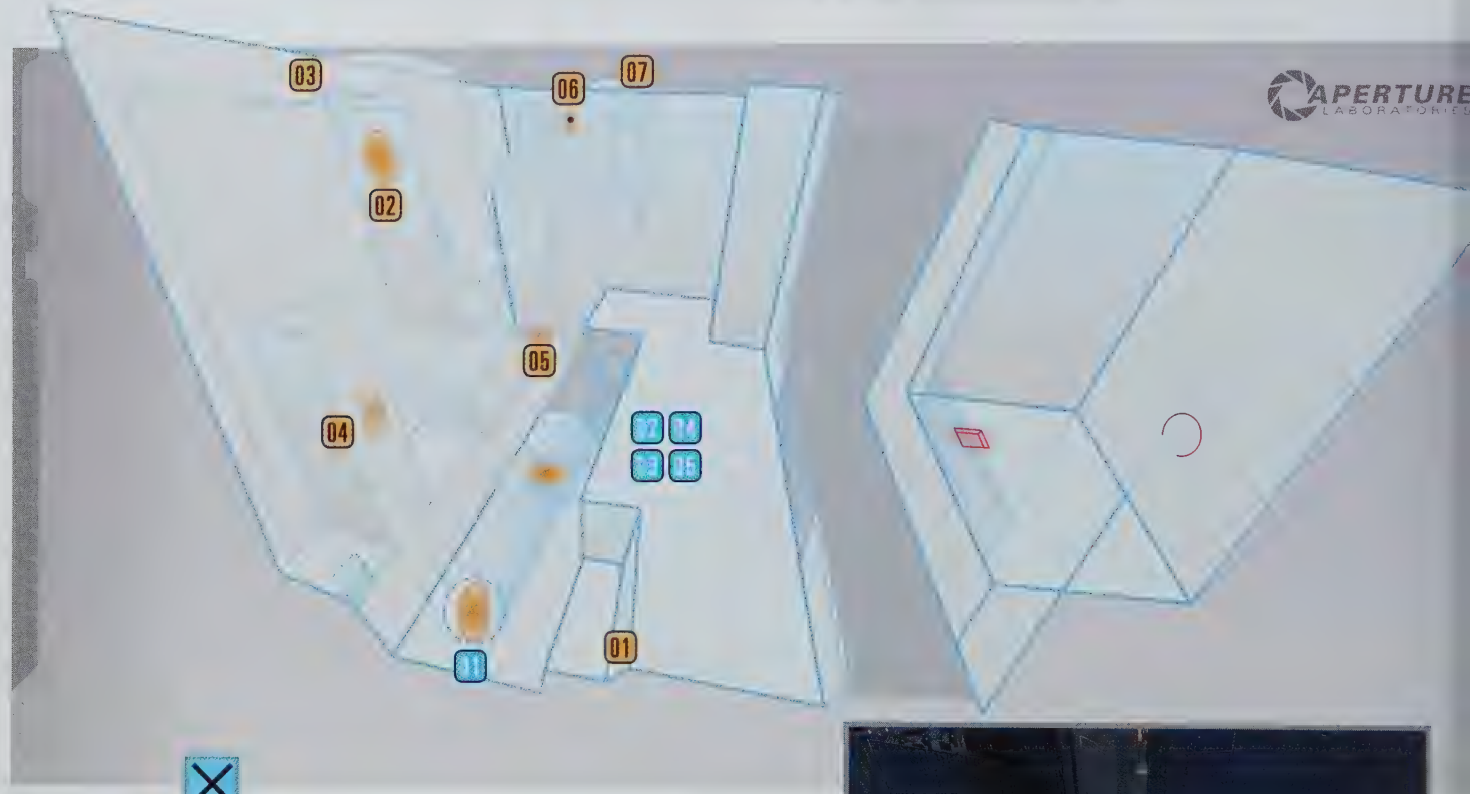
06 Reposition your exit portal so that it is on the floor of the first platform, making a vertical funnel.

05 Step into Blue's vertical funnel to get carried up to the ledge with the exit on it. Both players can then easily head through the door to the elevator.

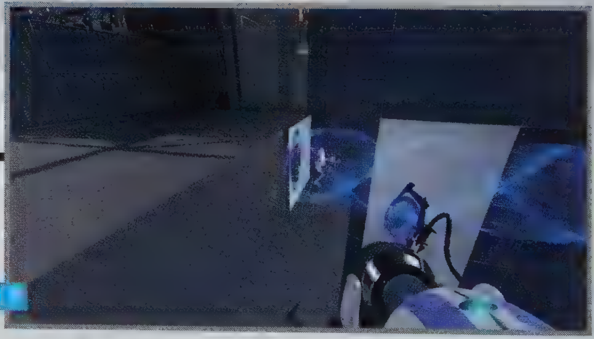
08

There is no huge mystery surrounding this chamber; it is dominated by the ominous spike maze to the far left. There is no complex puzzle to solve here, it is more a challenge of planning, communication, reflexes, accuracy and more communication (it's important!). The player in the maze will have to navigate the maze via quick funnel placements, so the player here should be one that is accurate and quick, and has good spatial awareness. The player outside operating the polarity switch and orchestrating the journey must have excellent timing and the good judgment to know when to change polarity and for how long.

Room 01 Summary | The exit area is easy to reach; it can be flung into via the diagonal surface. However, the cube needed to open the exit must be retrieved from the end of the spike maze. One player will have to navigate it by moving a funnel onto surfaces inside it, while the other controls the polarity to help him through.



01 Look down into the ravine to the left and place your first portal on the wall that the Excursion Funnel is heading into, and then you can place your exit funnel on the wall directly to the left of that so that the Excursion Funnel is heading into the spike maze.



01 Drop down into the funnel so that you can cross the ravine and head into the spike maze. When you pass the Emancipation Grill, place your first portal on the wall that the Excursion Funnel is hitting. Your second portal should then be placed on the white section of floor so that the Excursion Funnel is redirected upwards.

The aim at this point is for you to make it to the end of the spike maze in one piece while Blue uses the button to control the polarity of the Excursion Funnel to keep you out of danger. To navigate along the maze, you will need to keep repositioning your exit portal to create new sections of Excursion Funnel.

02 Once you are at the very top of the of the spike maze in the first Excursion Funnel you created, reposition your exit portal onto the wall on the opposite side so that you can begin traveling horizontally after dropping down into the new Excursion Funnel

02 As soon as Orange moves into the new funnel, step on the button to change the polarity of the Excursion Funnel to lead him away from the spiked wall.

03 After traveling a short distance, move your exit portal so that it is on the ceiling of the spike maze.

03 You will need to step off the button so that Orange can travel downwards.

04 Once you are in line with the next horizontal section, create a new exit portal on the side of the wall so that you can start heading towards the spike press.

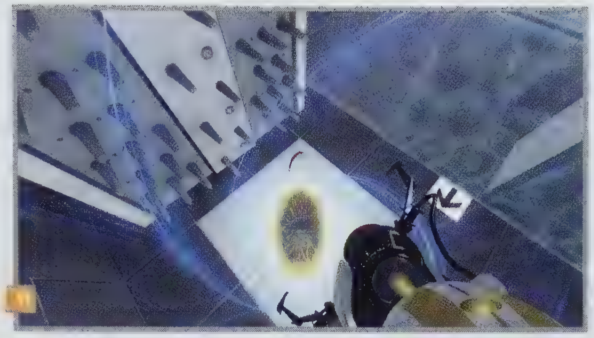
04 You will need to use the polarity changing button to keep Orange away from the press until it is safe to pass, and then change the direction to allow him to do so.

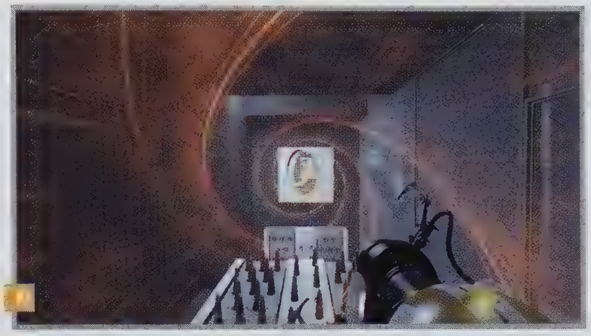
05 After passing the first spike press, you will need to place a new exit portal on the floor below so that you can start traveling upwards again with the correct polarity.

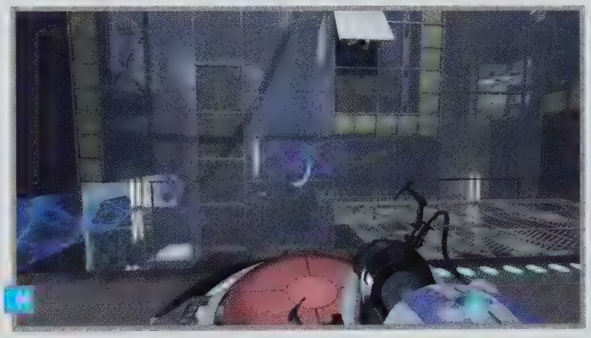
05 There is another spike press during this ascent, so you will need to control Orange's position until it is safe to pass.

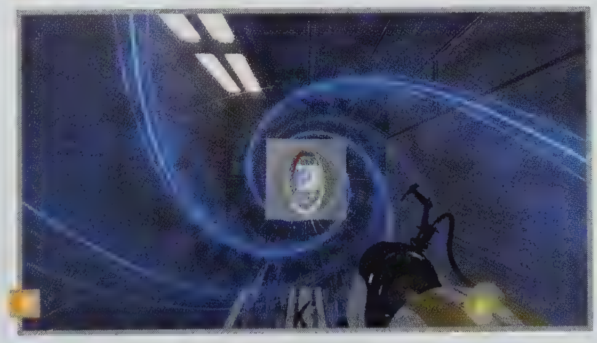
06 Once you have made it safely past the final press, you will need to create a new exit portal on the section of wall at the end of a small passageway to the side of the maze. Travel along the Excursion Funnel and drop down onto the platform below.

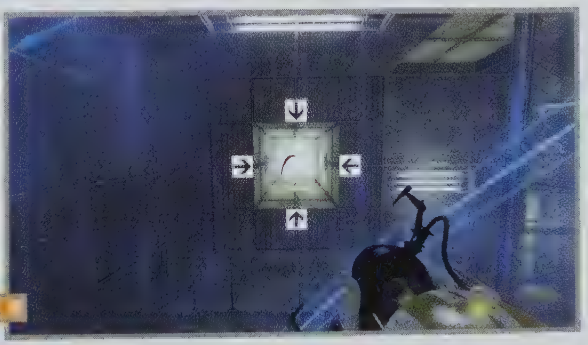
07 From this vantage point you can easily see down to the cube, but first you need to take care of the turret. There is a set of white panels on the ceiling above the turret and this is where you need to place your exit portal.

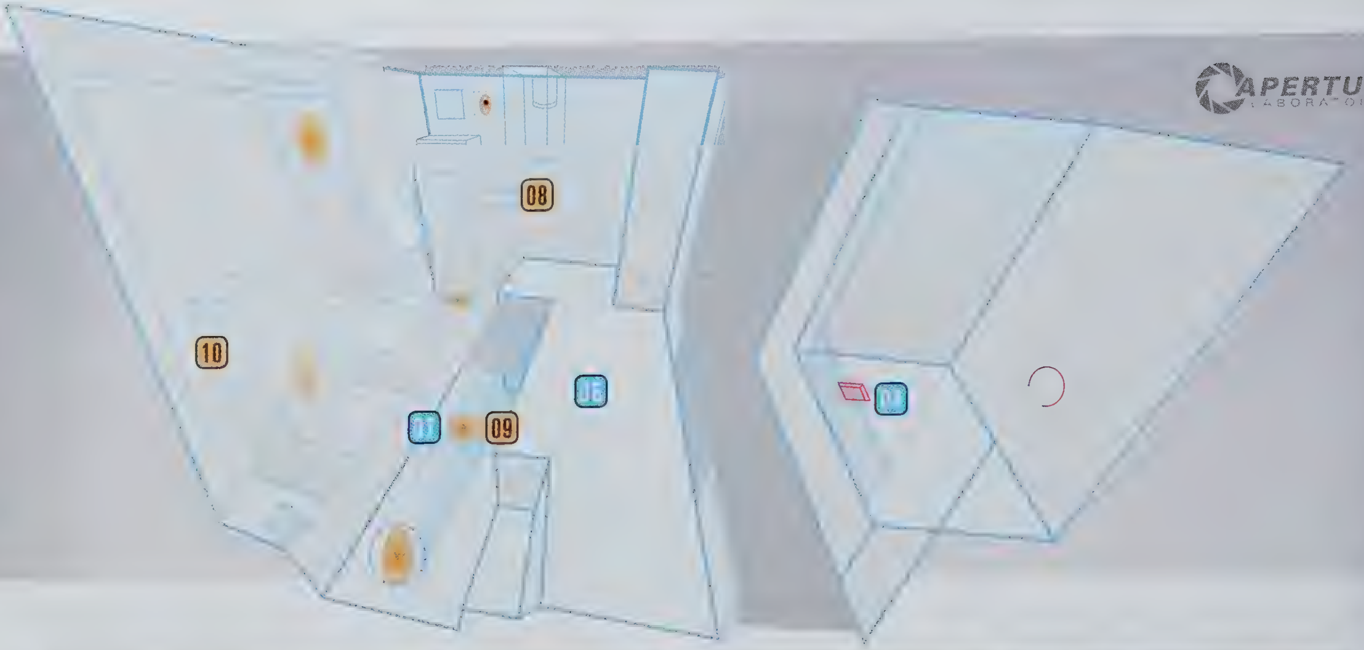


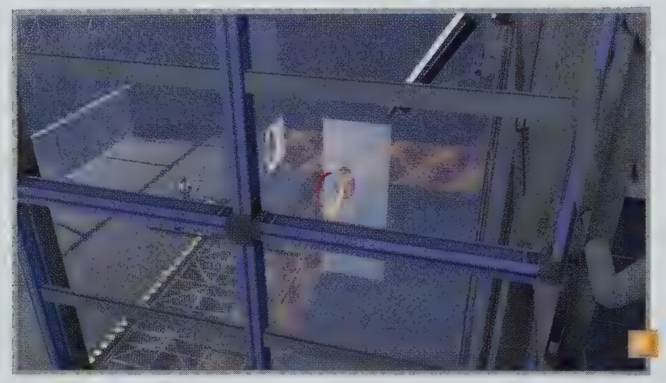


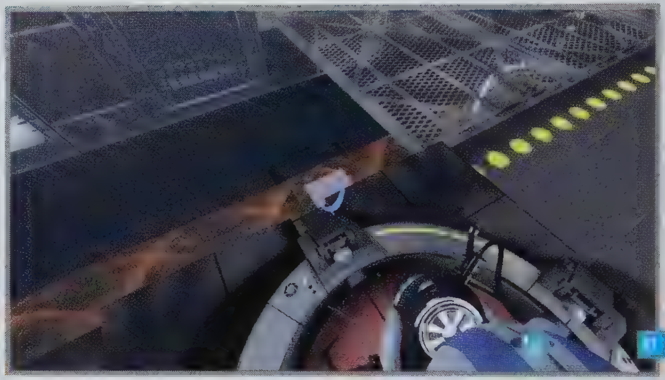












06 Change the polarity to suck the turret up out of harm's way using Orange's funnel.

07 Once Orange and the cube have come back through the funnel and are in the ravine, overwrite Orange's portal again and retrieve the original funnel that is being generated. Step off the button and move your exit portal onto the small white section on the floor of the ravine so that an Excursion Funnel is created going upwards. Then jump into the upwards funnel, joining Orange.

08 Once you have floated a significant distance up the Excursion Funnel, move your first portal that is retrieving the funnel, onto the diagonal white surface. This will cause both of you and the cube to drop down into your portal and get flung out of the diagonal one, across the ravine and over to the exit area.

Room continued

08 Now, look to the right through the window, and fire your first portal at the original funnel that is being generated, overwriting Blue's portal.

09 Pick up the cube and exit through the Excursion Funnel portal to make your way back to the ravine.

10 Once you reach this area, place the cube into the receptacle to open the exit door.

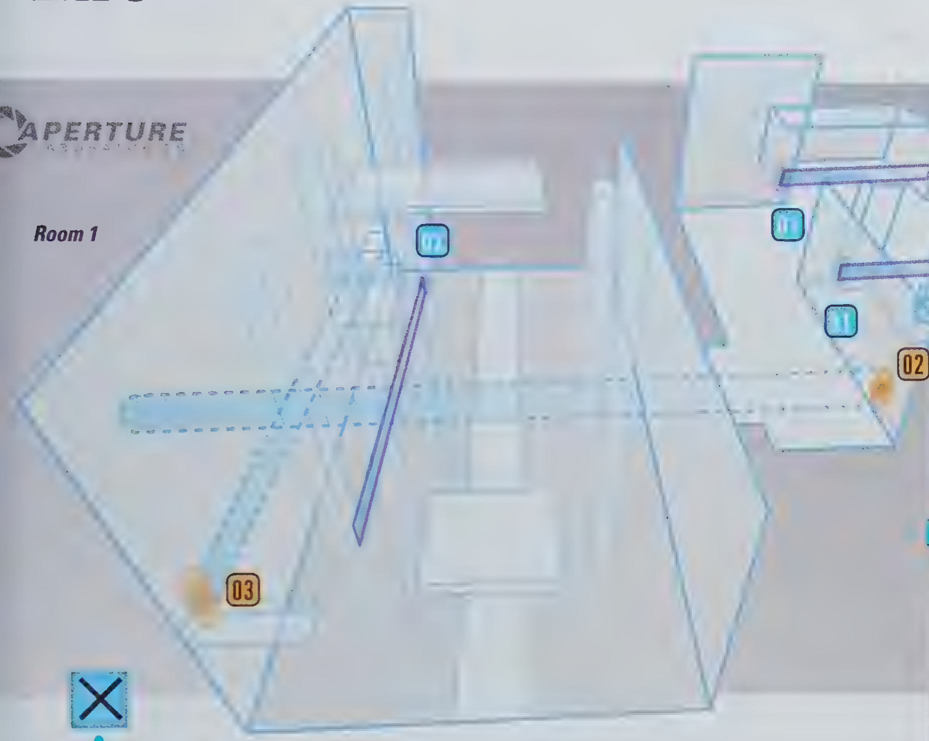
09

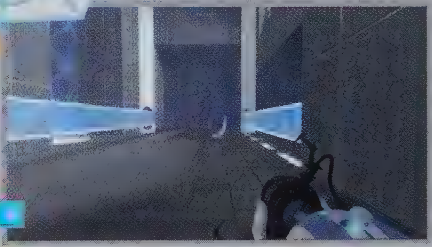
09/09

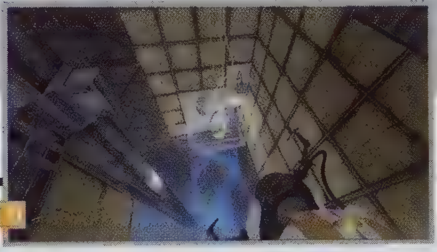
07_105

This final chamber of a very long course is an absolute marathon of portal puzzlement, combining almost every technique you have used in previous chambers up until now. This chamber presents you with both Hard Light Surface generators and Excursion Funnel generators, letting you retrieve both and combine their use to solve the problems you will face. All the previous uses of Light Bridges will come into use here, including using them as shields and to stop momentum, as well as using them as platforms. The funnels will primarily be used to transport you around the huge rooms, both vertically and horizontally. Turrets are found everywhere, including a conveyor belt of lead-spitting death, so be careful to protect yourself with well placed bridges.

Room 01 Summary | The main danger to overcome in this room is the conveyor belt of turrets near the exit platform. You will have to shield yourself from them using a Light Bridge.







01 Put a portal on the wall where the Hard Light Bridge ends, and then place the exit portal on the adjacent pillar to block off the enemy turrets.

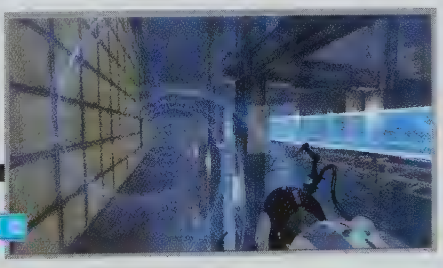
02 As soon as you drop into the funnel, place a new exit portal on the pillar to your right, creating a Hard Light Bridge shield to block the fire of the turrets on the conveyor belt. Be sure to place it on the rear pillar, which will shield you from the turrets for the entire journey. Then just drop to the platform at the end of the funnel and exit.

Room 1

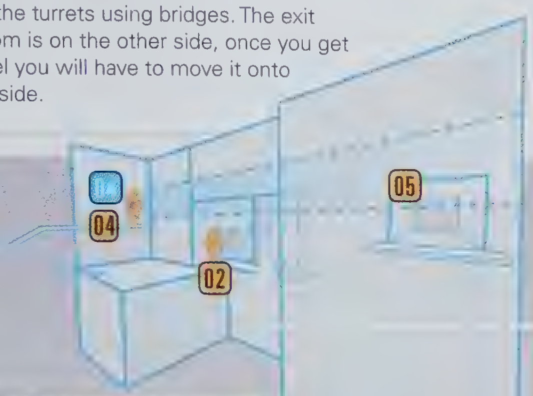
01 Look to the left and place a portal on the end of the Excursion Funnel on the ceiling to retrieve it.

02 Place the exit portal on the small white surface around the corner, creating an Excursion Funnel. Both of you then need to enter this Excursion Funnel and travel onto the far wall.

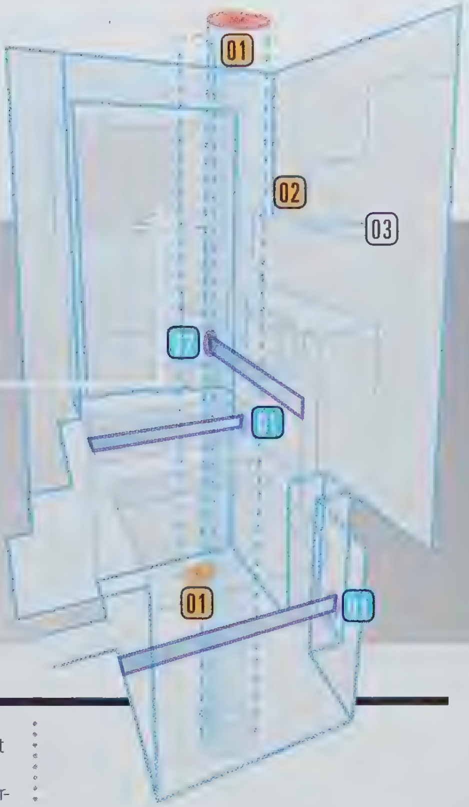
03 You must create a new Excursion Funnel once you reach the far wall by firing your exit portal on the wall to the lower right, which both of you will drop into.



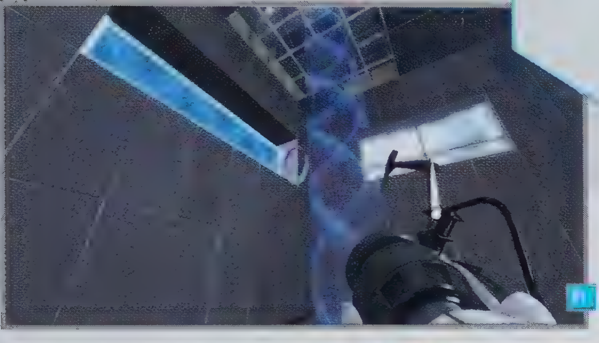
Room 02 Summary | To ascend the room safely, you must protect yourself from the turrets using bridges. The exit leading to the next room is on the other side, once you get to the top of the funnel you will have to move it onto the surface on the far side.

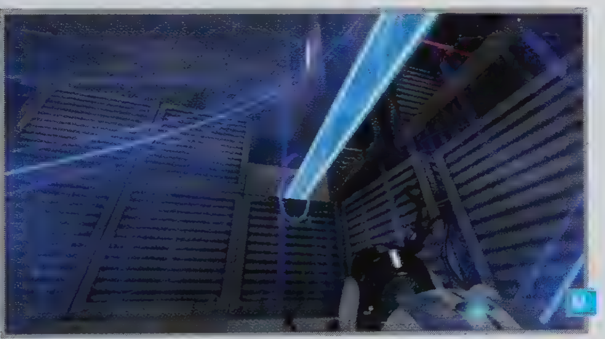


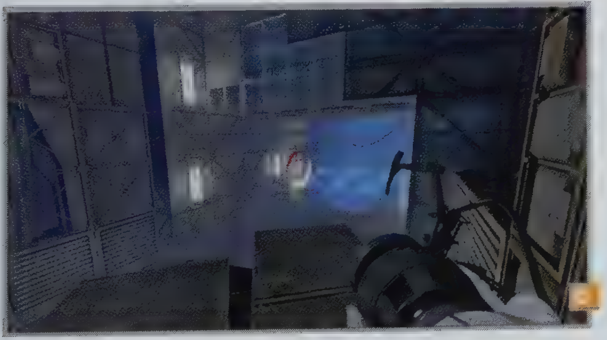
Room 2

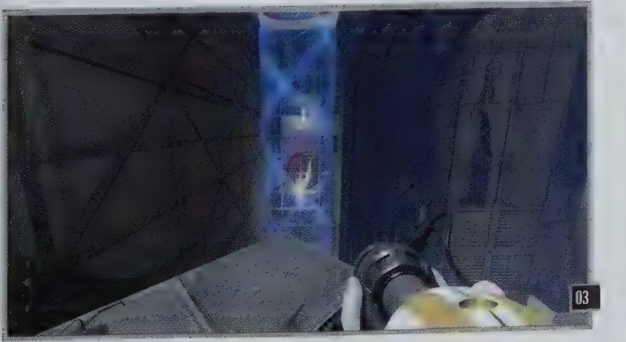


Room 2









01 Retrieve the Hard Light Bridge and put the exit portal in front of the turrets above and to the left to block them.

01 You must retrieve the Excursion Funnel by firing a portal on the ceiling it is hitting. Then put the exit portal on the white surface on the floor near you.

02 Both of you should go up, with Blue going first and moving the bridge exit portal onto the wall in front to block the turrets.

02 Once you get to the top of the funnel, both of you should jump out of it onto the walkway at the top. From here you must reposition your exit portal Excursion Funnel on the far right on of the room, on the white surface.

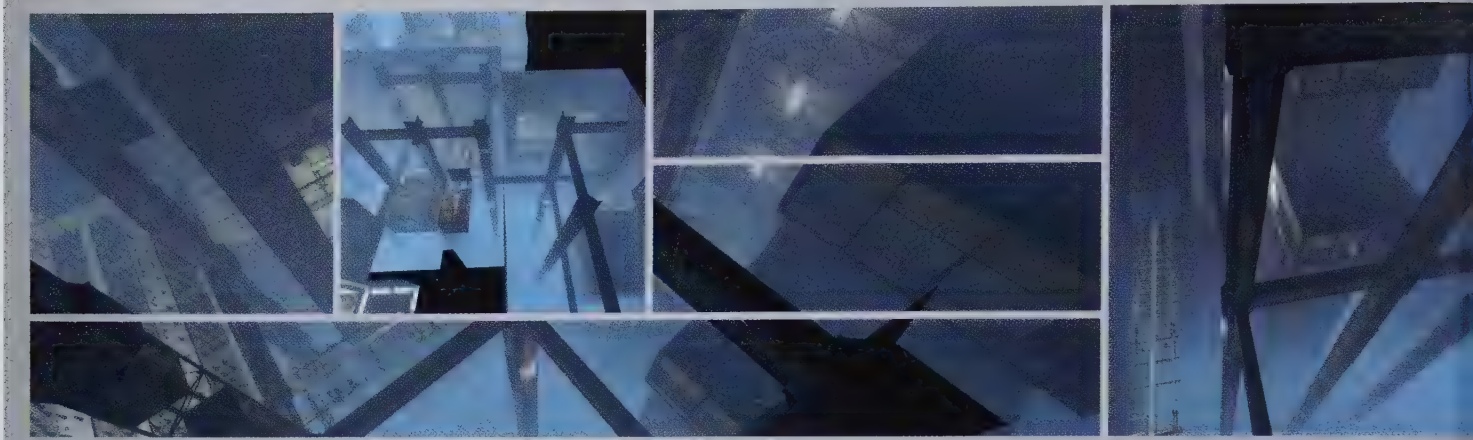
03 Both of you should travel along the walkway to where the initial funnel is firing upwards into Orange's first portal and jump into it, traveling through the ceiling portal.

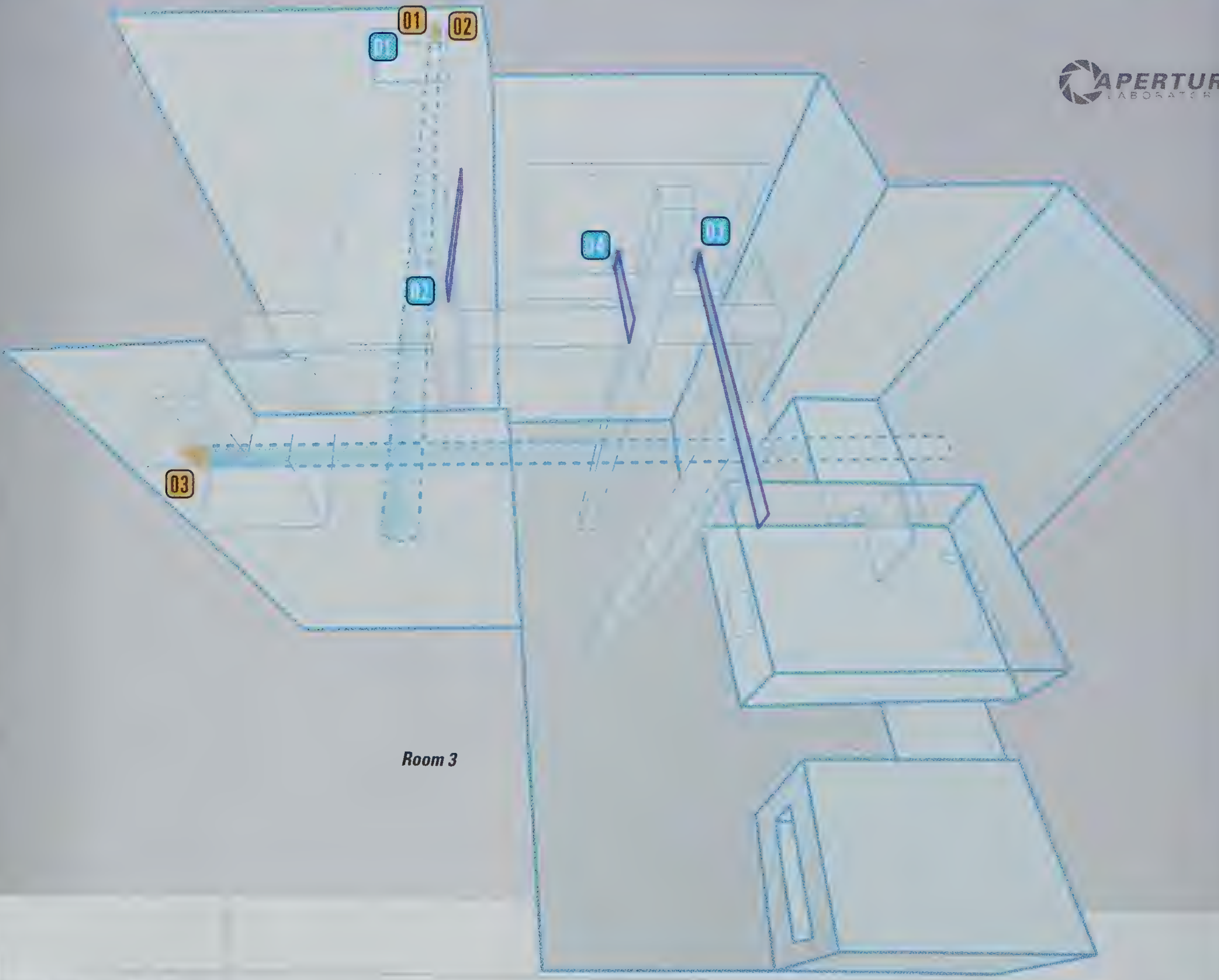
04 You will be at the far end of the room, follow the funnel to the end and drop down onto the platform. Go up the staircase and then place the exit portal for the Excursion Funnel onto the white wall here.

04 Both players should jump into it and travel through it until they see a platform to the left, which they should jump onto to reach the airlock to the next area.

05 Jump into the the funnel with Blue and head over to the exit platform.

Room 03 Summary | You will need to use the bridge as a shield and the funnels to move around as usual. The final obstacle you will have to face before getting to the office that contains the disc and player, is another conveyor belt of turrets, however you will not be able to shield yourself from the turret fire so you will have to find another way to stop them.





Room 3

Room 3

01 As you enter this corridor, head around the corner and look out of the window area, from here retrieve the Excursion Funnel.

01 Look straight down through this window and retrieve the Hard Light Bridge.

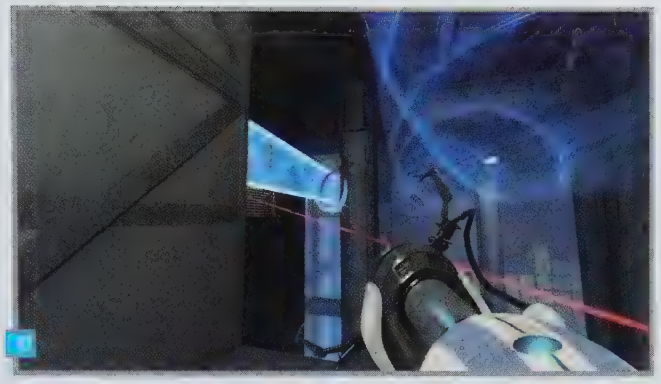
02 Place the Excursion Funnel on the only white surface in this corridor, just opposite the opening that leads to the large room.

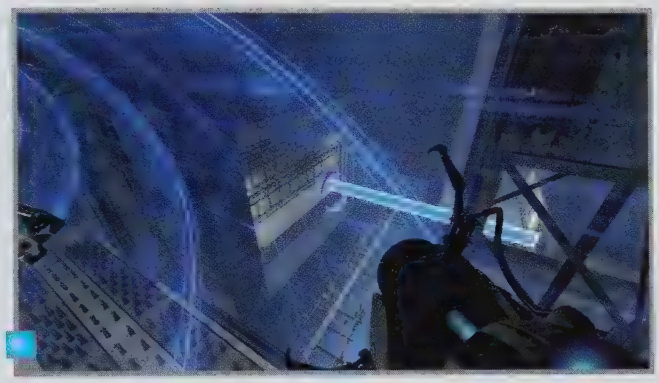
02 Look out into the large chamber where you will see a row of turrets to the left, these should be blocked with a bridge shield.

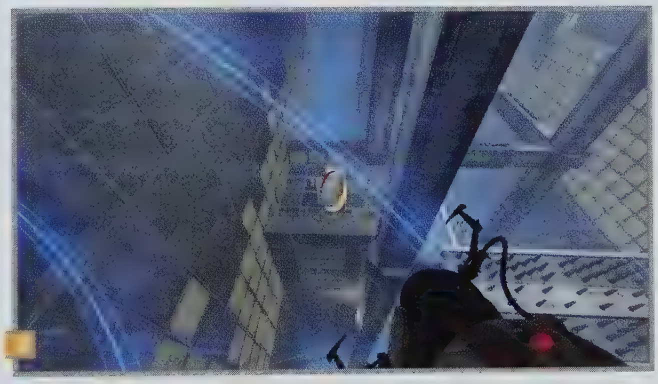
03 Both of you should then head through the Excursion Funnel. When you get to the end, reposition your exit portal to form the bridge on the wall to the bottom right, as far along the wall as possible. This bridge will knock the turrets off the conveyor belt before they can attack you.

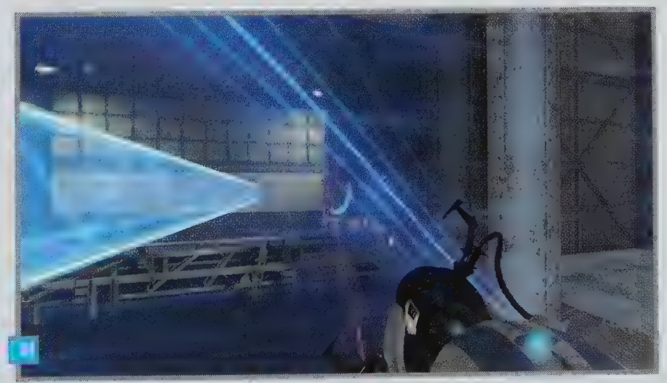
03 You can now shoot a new exit portal to the lower left to re-form the Excursion Funnel underneath you, which you will drop into.

04 As you pass along the Excursion Funnel and hit the previously placed Hard Light Bridge, you must reposition your bridge further to the left of the wall, behind both of you, so you can get past. Then just drop down at the end and and go into the office. The disc you need to pick up is in the far left side of the office on a desk. Pick it up, and insert it into the player.



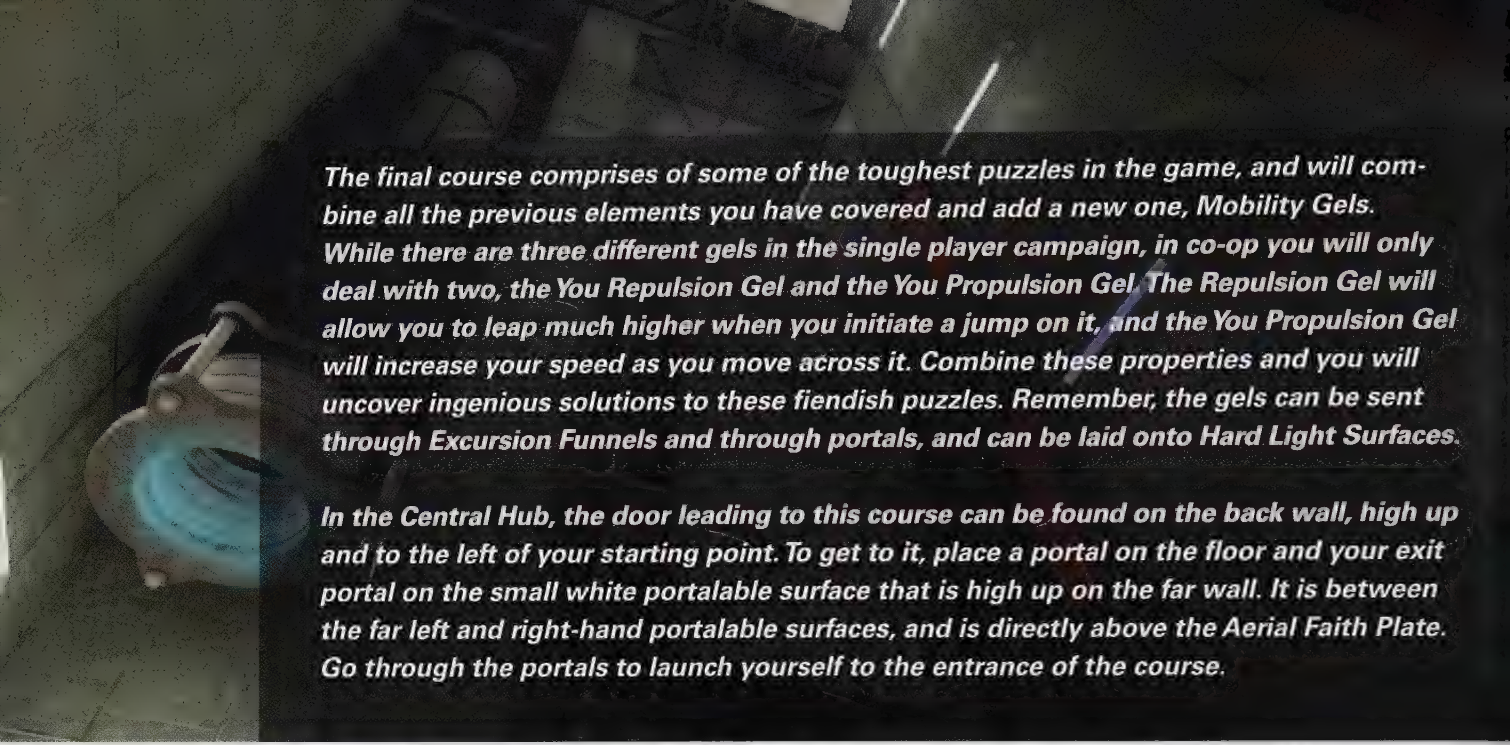






Trophy/Achievement Tip

This is the chamber that you can unlock the get the companion cube trophy here



The final course comprises of some of the toughest puzzles in the game, and will combine all the previous elements you have covered and add a new one, Mobility Gels. While there are three different gels in the single player campaign, in co-op you will only deal with two, the You Repulsion Gel and the You Propulsion Gel. The Repulsion Gel will allow you to leap much higher when you initiate a jump on it, and the You Propulsion Gel will increase your speed as you move across it. Combine these properties and you will uncover ingenious solutions to these fiendish puzzles. Remember, the gels can be sent through Excursion Funnels and through portals, and can be laid onto Hard Light Surfaces.

In the Central Hub, the door leading to this course can be found on the back wall, high up and to the left of your starting point. To get to it, place a portal on the floor and your exit portal on the small white portalable surface that is high up on the far wall. It is between the far left and right-hand portalable surfaces, and is directly above the Aerial Faith Plate. Go through the portals to launch yourself to the entrance of the course.

COURSE 05

MOBILITY GELS

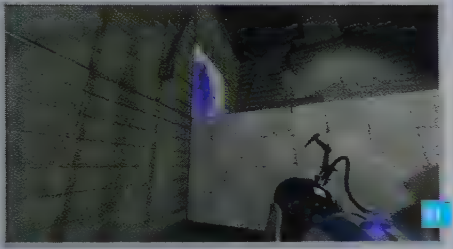
01

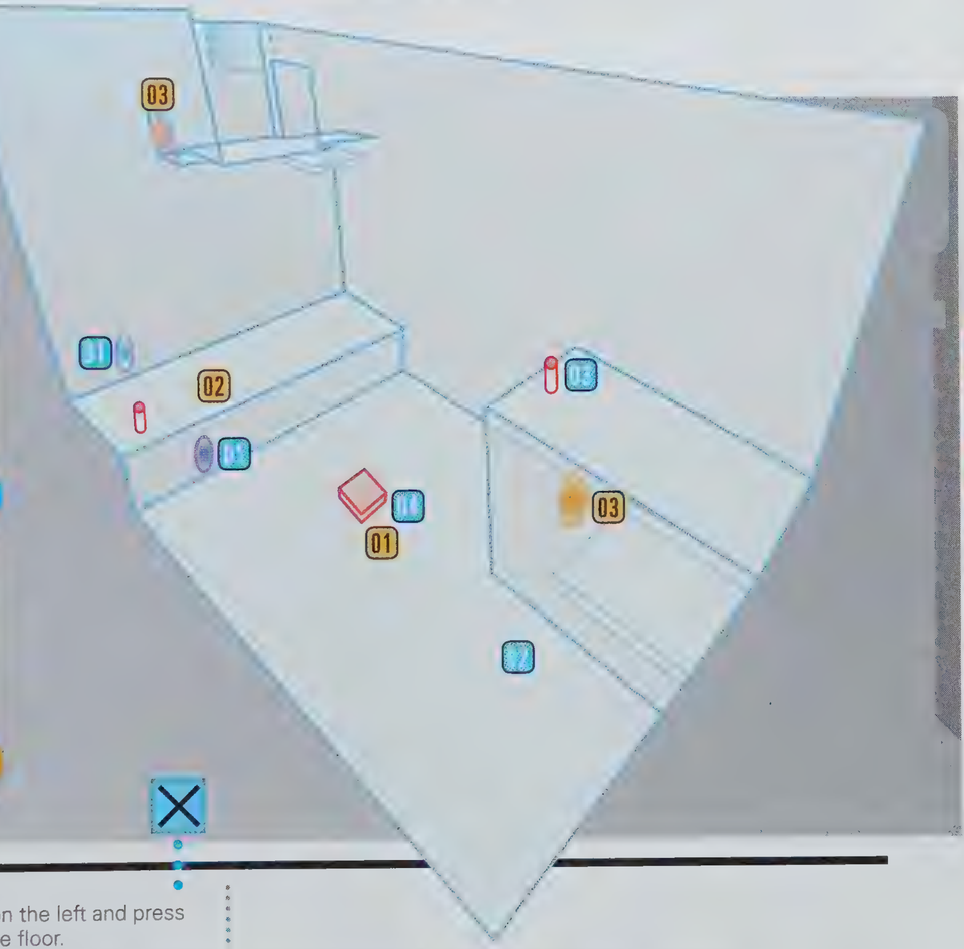
01/08

Like most of the early chambers, this one is designed to introduce you to Repulsion Gel, the first of the two Mobility Gels you will be using in these chambers. For this chamber, you will not need to figure out where to lay the gel, the two switches in the room will place them in the correct places, and you will only need it to make simple jumps.

Room 01 Summary | The exit area is at the very top to the left, and an elevator must be used to get to it. You will have to use both switches in the room to dispense gel in two different locations in order to let one player jump to the elevator leading to the exit.

07_106





01 Portal your way to the raised ledge area on the left and press the switch to release Repulsion Gel on the floor.

02 Use the gel poured next to the elevator on the right to jump onto it.

03 Press the button that is at the top of the elevator to release more Repulsion Gel on the left raised area.

04 Now jump down to the floor area and stand on the button to lower the left elevator for Orange.

01 Stand on the button on the floor, lowering the elevators.

02 Step off the button and let Blue ascend to the top, and go through his previous portals to get to the area on the left.

03 You need to use the gel to jump onto this elevator after it has lowered and ascend to the top. There is a portalable wall here, place a portal there and then the exit portal somewhere on the lower area walls so Blue can come through. Then head to the exit.

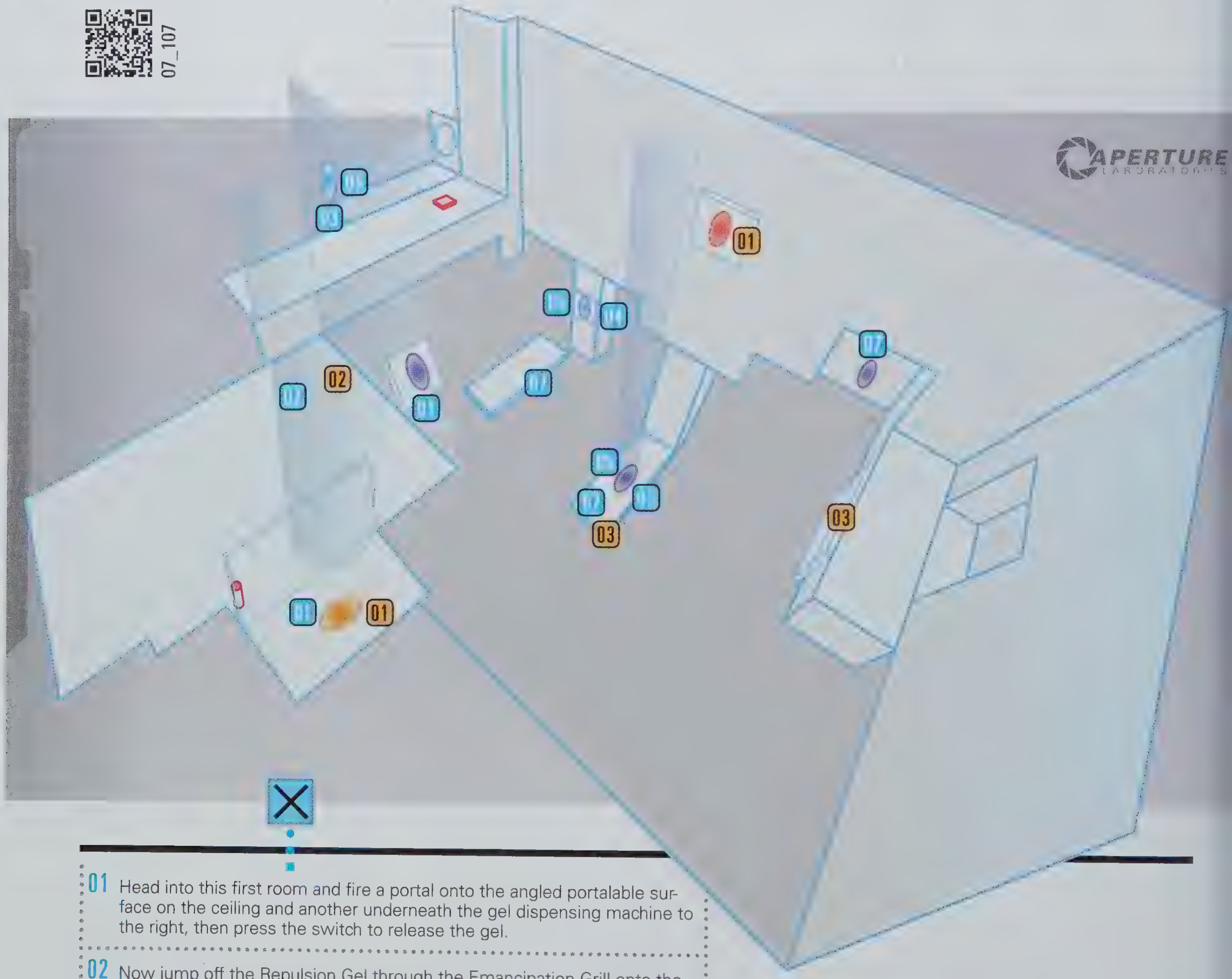
02

02/08

07_107

This is an enjoyable chamber that will require you to make use of both Repulsion Gel and an Excursion Funnel. This is the first time you will make use of an important technique; catching gel in a funnel to get it to where you want it. Also remember the advantages of two separate view points and take advantage of a player in a different location being able to see a surface the other cannot.

Room 01 Summary | Your only task to clear this chamber is making it across the huge goo pit to reach the exit on the other side. You will need to coat the platforms below with Repulsion Gel in order to make the jump. You must using the extended panels or some other means to catch the players when they attempt the jump.



01 Head into this first room and fire a portal onto the angled portalable surface on the ceiling and another underneath the gel dispensing machine to the right, then press the switch to release the gel.

02 Now jump off the Repulsion Gel through the Emancipation Grill onto the outside platform area, while Orange stays in this room.

03 Turn around and retrieve the Excursion Funnel behind you with a portal and then place the exit portal on the second platform at the bottom of the pit. This will be used to collect the gel.

01 While still in the first room, place a portal on the surface outside that you can see through the gap in the Emancipation Grill. Place your second portal under the gel dispenser. Then press the switch to release the gel into Blue's vertical Excursion Funnel.

04 Once the gel is caught in the vertical funnel, you must move your exit portal onto the bottom surface in the pit that is to the left of the first platform. This will move the funnel here, and cause the suspended gel to fall onto the second platform in the pit.

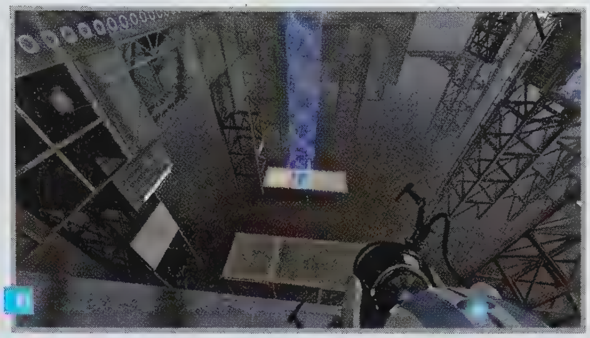
05 Now repeat the process by first placing your funnel on the second platform, causing it to emanate vertically again. Once the gel is caught in the vertical funnel, you must move the first portal you placed (not the exit portal, but the portal that is retrieving the Excursion Funnel) onto the bottom surface again before the gel reaches the top of the Excursion Funnel. This will spray the gel all over the first platform in the pit.

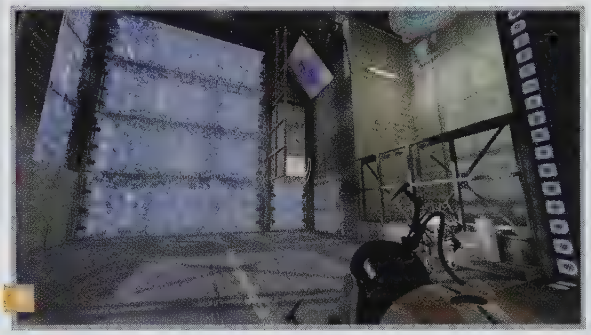
06 Before attempting the jump, retrieve the Excursion Funnel from behind you again. Make sure the exit portal isn't causing the funnel to get in your way as you make the jump.

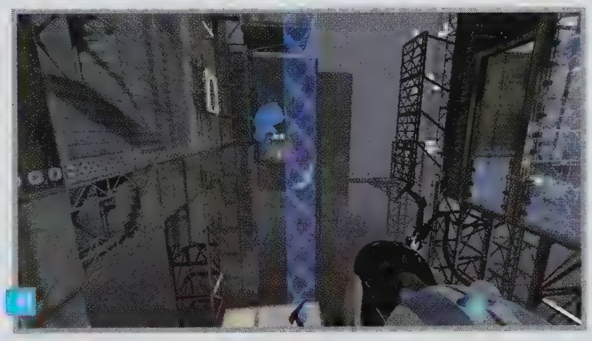
07 Now you can jump onto the gel coated platform at the bottom of the pit to begin bouncing over to the other side. Once there, place your exit portal on the portalable surface on the right, extending the funnel just under the raised platforms.

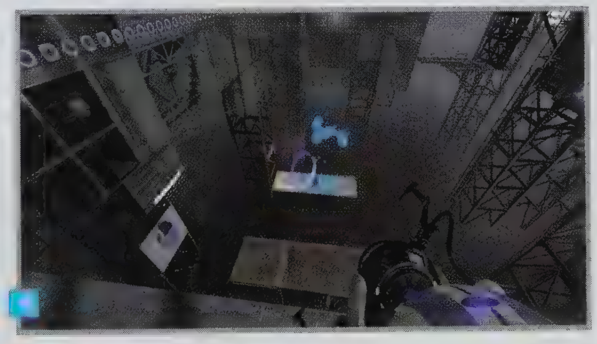
02 Now you can join Blue and jump through the Emancipation Grill and then stand on the button to raise the panels on the platform on the far side.

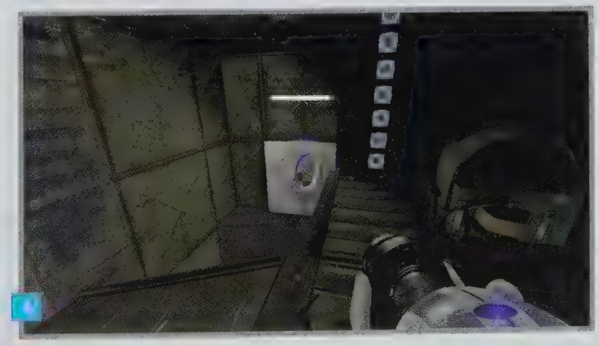
03 You can now get off the button and jump across, and you will be caught in the Excursion Funnel, where you can safely get to the stairs on the end and join Blue, where you can exit the chamber.









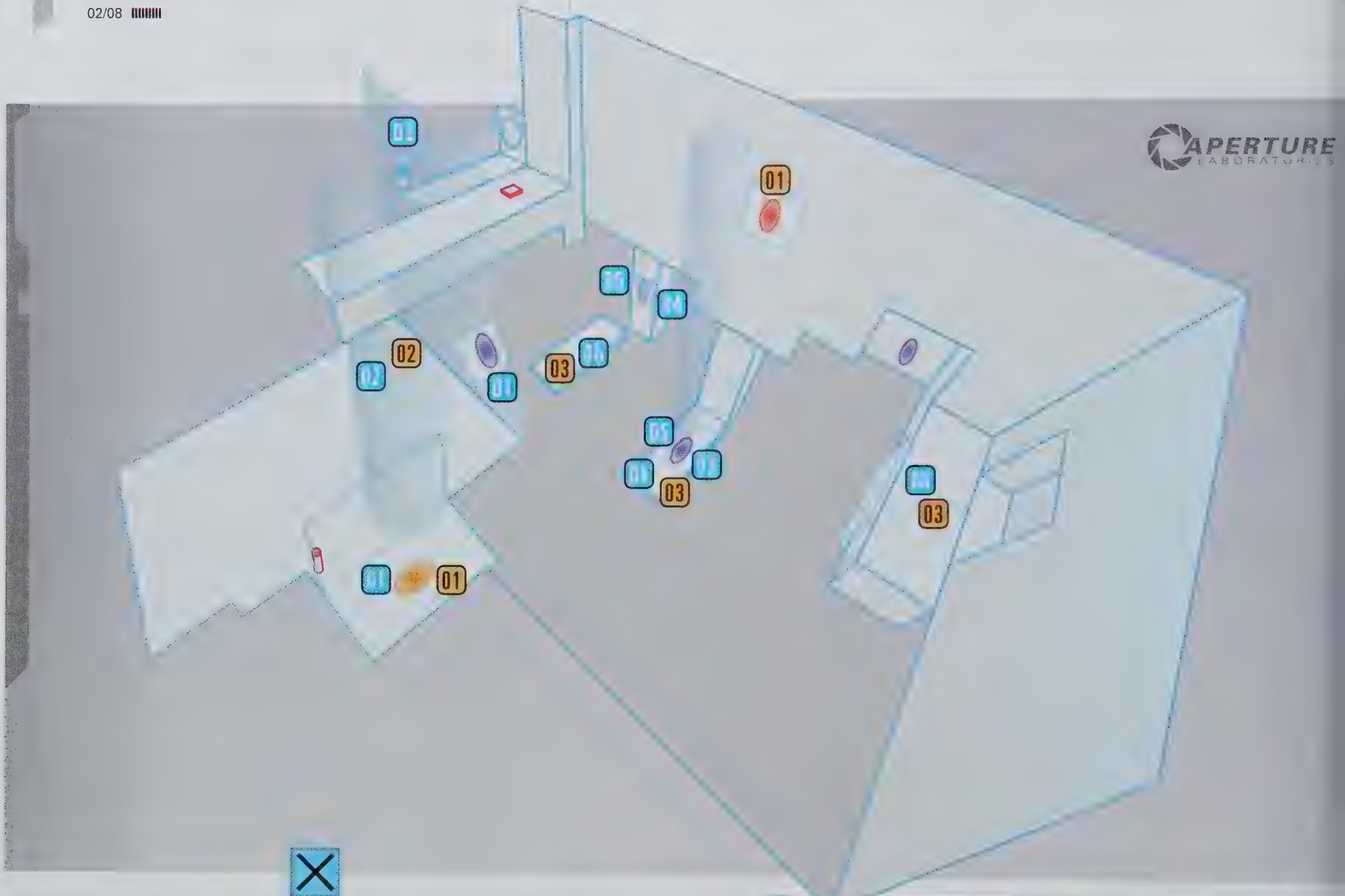


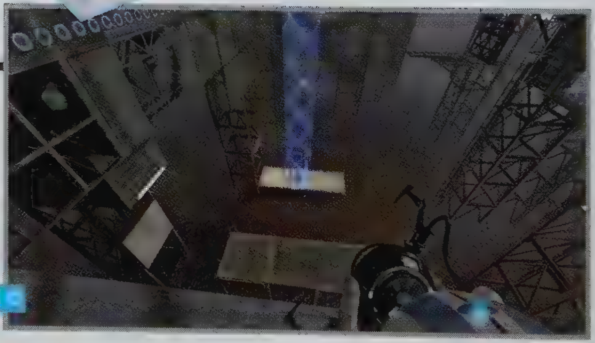
02

Advanced Solution

This room has a fast solution that can save time, where both players can jump across the pit together, without the aid of the raised platform or an Excursion Funnel.

07_108





01 Head into this first room, and fire a portal onto the angled portalable surface on the ceiling and another underneath the gel dispensing machine to the right, then press the switch to release the gel.

02 Now, jump off the Repulsion Gel through the Emancipation Grill onto the outside platform area, while Orange stays in this room.

03 Turn around and retrieve the Excursion Funnel behind you with a portal, and then place the exit portal on the second platform at the bottom of the pit. This will be used to collect the gel.

01 While still in the first room, place a portal on the surface outside that you can see through the gap in the Emancipation Grill. Place your second portal under the gel dispenser. Then, press the switch to release the gel into Blue's vertical Excursion Funnel.

04 Once the gel is caught in the vertical funnel, you must move your exit portal onto the bottom surface in the pit that is to the left of the first platform. This will move the funnel here, and cause the suspended gel to fall onto the second platform in the pit.

05 Now repeat the process, by first placing your funnel on the second platform, causing it to emanate vertically again. Once the gel is caught in the vertical funnel, you must move the first portal you placed (not the exit portal, but the portal that is retrieving the Excursion Funnel) onto the bottom surface again before the gel reaches the top of the Excursion Funnel. This will spray the gel all over the first platform in the pit.

06 Ordinarily you cannot reach the end platform via simply bouncing off the Repulsion Gel placed on the lower platforms; you need the raised platform or funnel to catch you. However, there is a way to extend the length of your jumps without using either of these, easily reaching the end platform.

First, jump straight onto the first platform as usual. Make sure you jump onto the far right edge of the platform. Once you bounce off the first platform, immediately hold left. This will move you in that direction while you jump to the next platform, increasing your height and speed. Once you bounce off the second platform, immediately hold right. This will give you enough of a speed and height increase to reach the end platform!

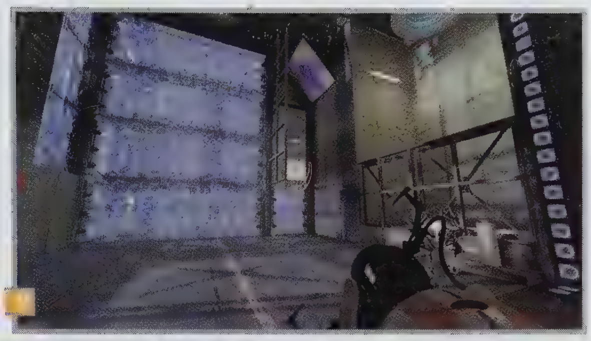
Be careful not to overshoot the second platform after you hold left after the first bounce. If you do, try holding left a little later, to give yourself less of a boost.

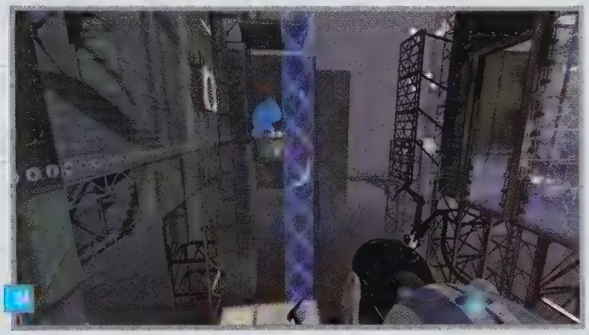
02 Now you can join Blue and jump through the Emancipation Grill, and then stand on the button to raise the panels on the platform on the far side.

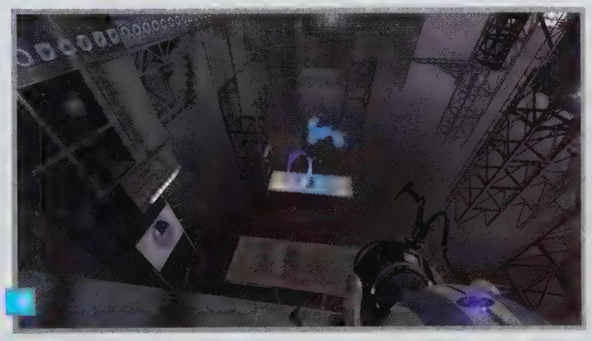
03 Ordinarily you cannot reach the end platform via simply bouncing off the Repulsion Gel placed on the lower platforms; you need the raised platform or funnel to catch you. However, there is a way to extend the length of your jumps without using either of these, easily reaching the end platform.

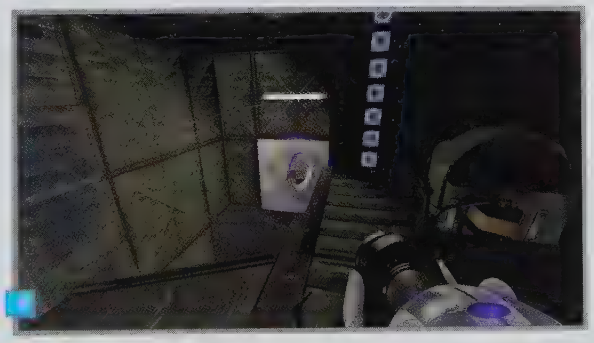
First, jump straight onto the first platform as usual. Make sure you jump onto the far right edge of the platform. Once you bounce off the first platform, immediately hold left. This will move you in that direction while you jump to the next platform, increasing your height and speed. Once you bounce off the second platform, immediately hold right. This will give you enough of a speed and height increase to reach the end platform!

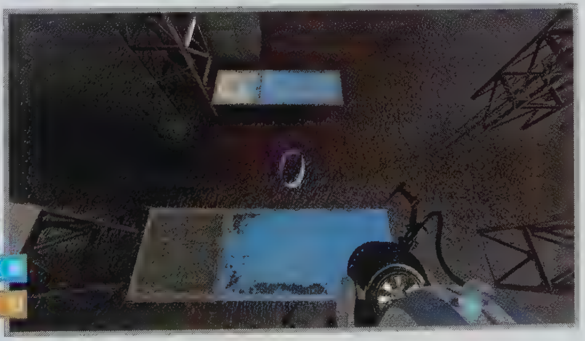
Be careful not to overshoot the second platform after you hold left after the first bounce. If you do, try holding left a little later, to give yourself less of a boost.









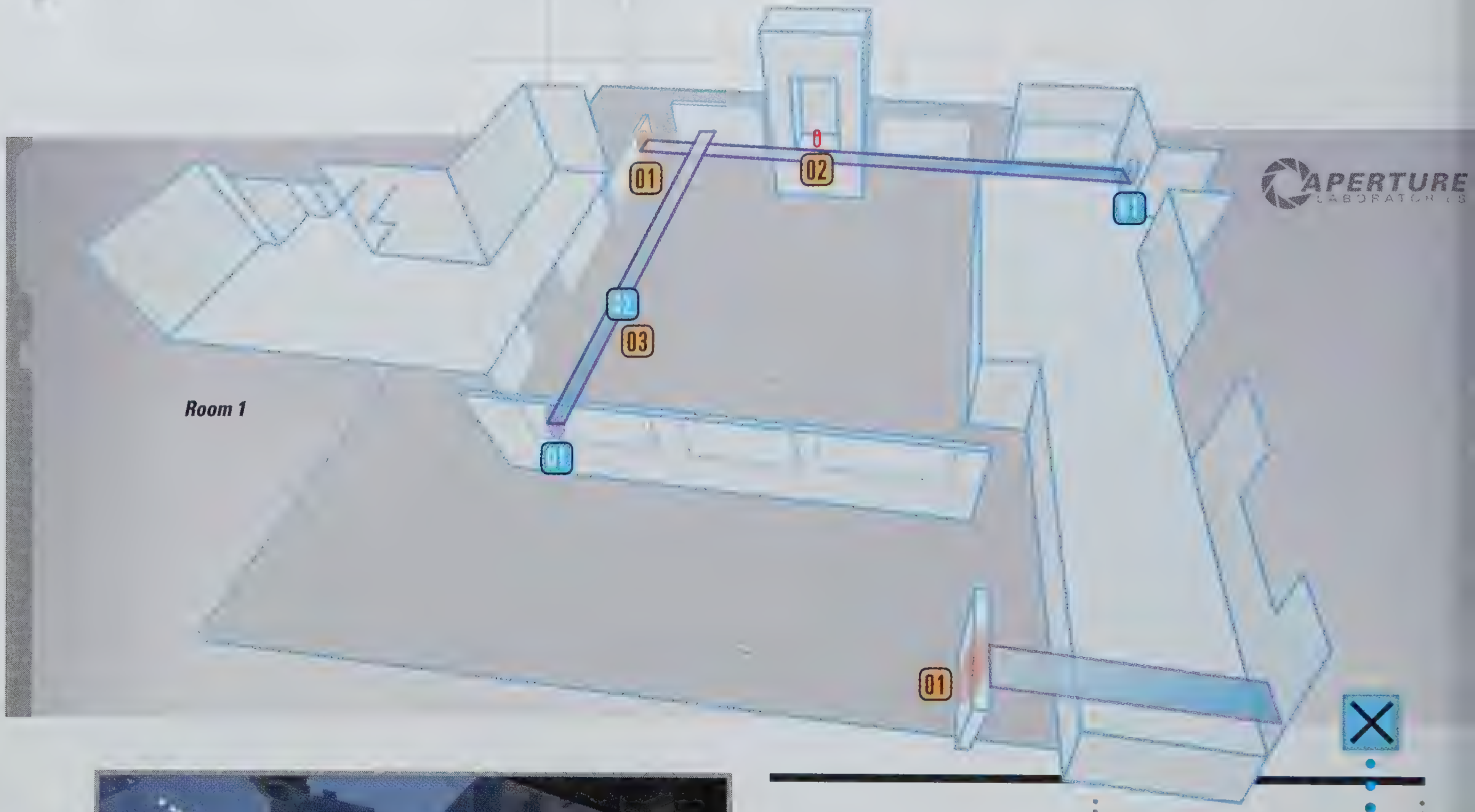


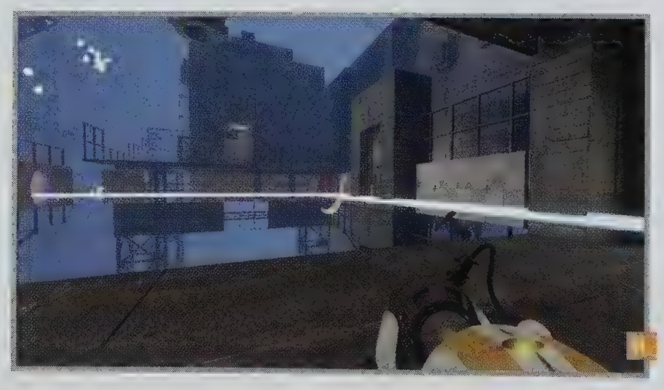
03

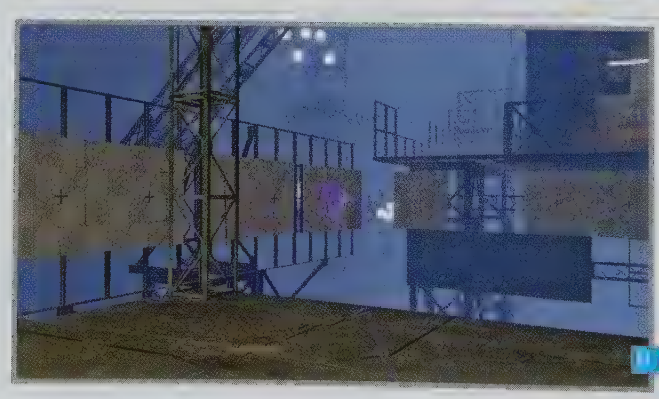
This chamber adds Hard Light Bridges back into the equation and is designed to present you with a new concept; using the movable Light Bridges as portable surfaces to place gel onto to get where you need to go.

Room 01 Summary | The door to the next room is on the raised area, and you must use the gel to jump up to it by creating a bridge to pour it on.

07_109







Room 1

01 Collect the Hard Light Bridge on the left by placing a portal on the end. Then place the exit portal on the right hand surface so the bridge extends across the chasm parallel to the switch on the right.

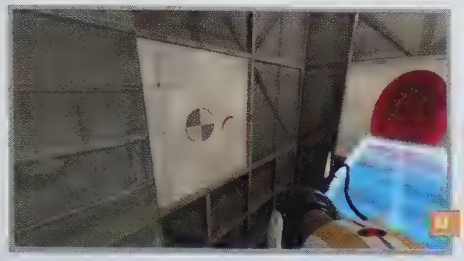
01 Place your first portal where Orange's bridge extends to, and then place the exit portal on the left hand side of the far wall, lining it up with the gel dispenser above it.

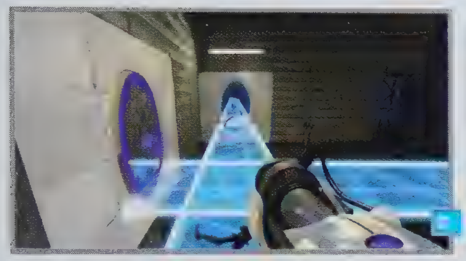
02 Press the switch which will dispense the gel.

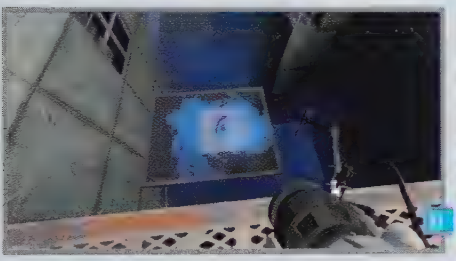
02 Both players can now walk through the portals to the bridge where the gel has been poured, jump to the higher area and finish this room.

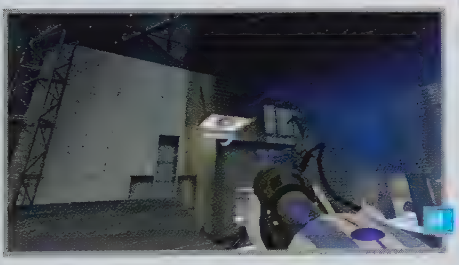
03 Both players can now walk through the portals to the bridge where the gel has been poured, jump to the higher area and finish this room.

Room 02 Summary| This room is mostly a large pit that must be navigated via Hard Light Bridges. The exit area is immediately above and to your right. It can only be reached by jumping off of Repulsion Gel.









Room 2

01 Retrieve the bridge by placing your portal where it ends. Both players should walk to the end of it.

02 At the end of the bridge there is a portalable surface to the left. Place your exit portal here.

01 Now walk across this bridge through the Emancipation Grill over to the other side of the room. On this side, place a portal on the wall in front to retrieve the bridge, and then the exit portal on the wall to the immediate left.

03 Walk over to the switch and press it to drop Repulsion Gel onto Blue's bridge.

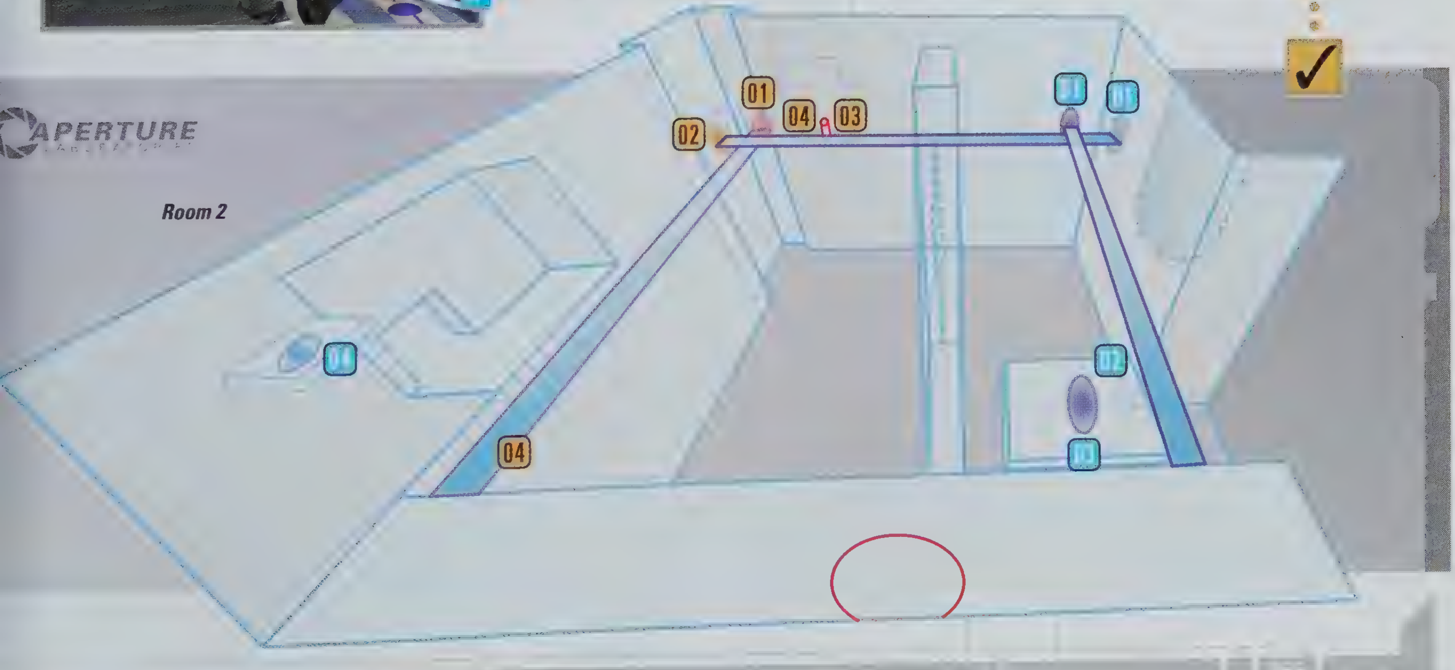
02 You can use this dropped gel to jump up to the top area.

03 From this higher elevation, you must place a new portal onto the portalable surface under the bridge, under the gel dispenser.

04 The exit portal should be placed on the ceiling surface on the left hand side of the room that is overhanging the first bridge.

04 Now press the button again, covering the first bridge with gel. Use this to jump to Blue and join him at the top, then exit the area.

✓



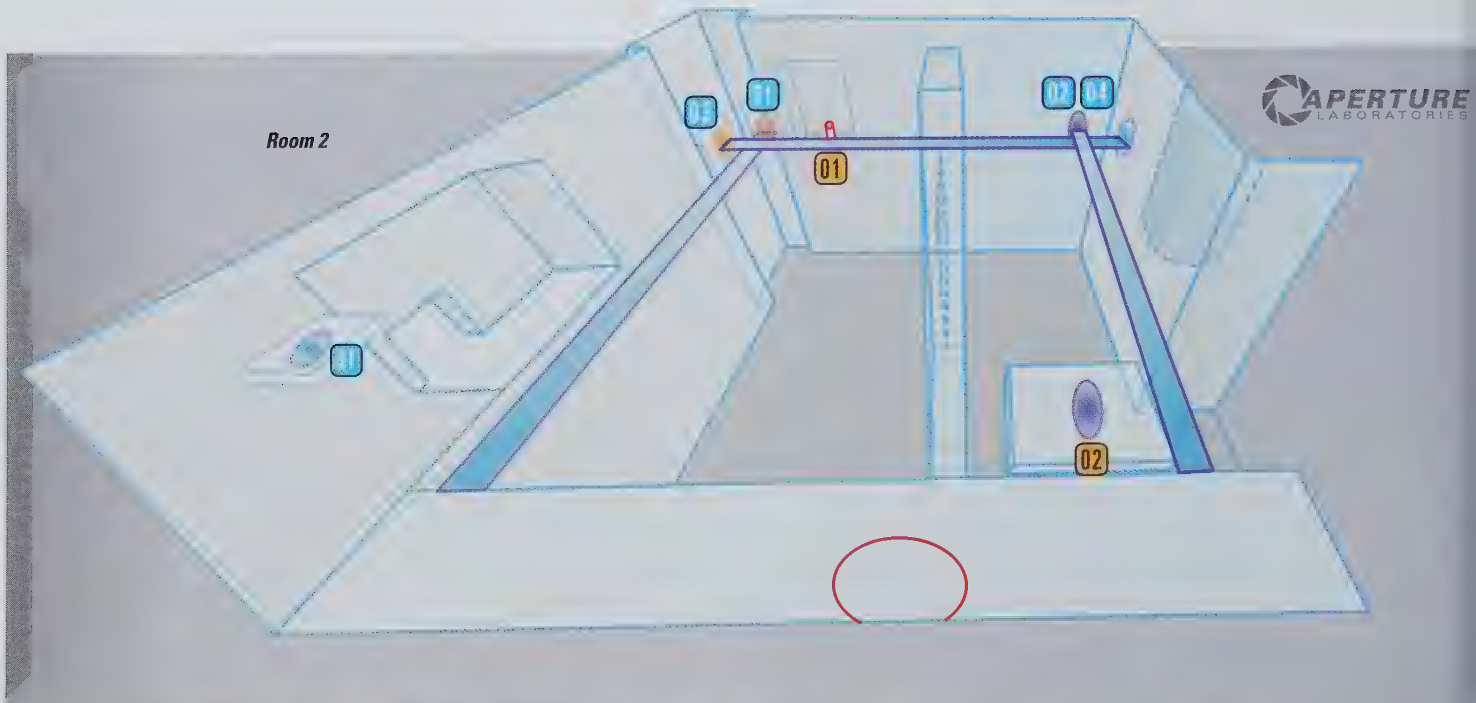
03

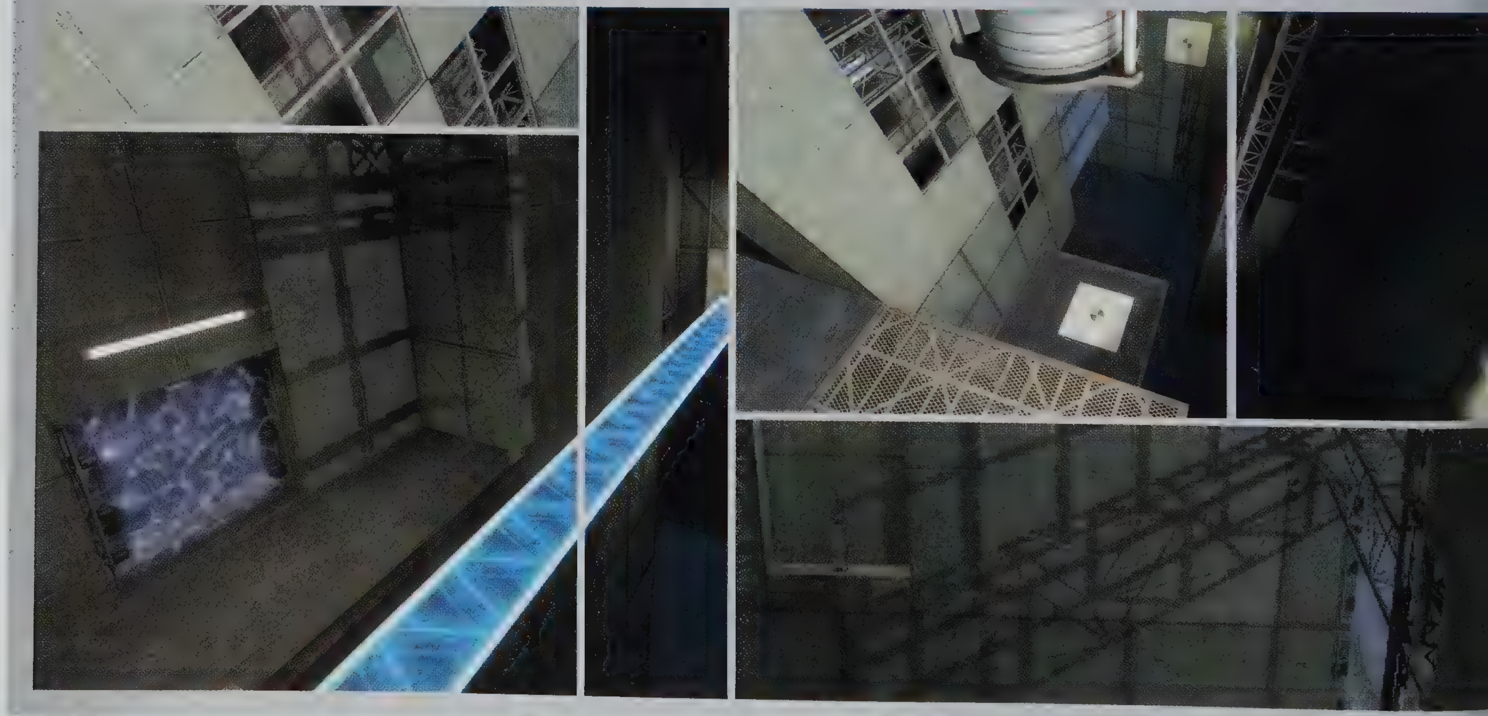
03/08

Advanced Solution

This second room has an alternative solution. While it doesn't shave too much time off the recommended solution, it is an interesting alternative that can show that there are multiple ways to tackle a chamber if you think creatively.

07_110





01 *Place your first portal on the ceiling surface above the bridge. Place your second portal at the end of the bridge and walk towards that end.*

02 *You will have to walk through this portal, and while falling, immediately fire a portal onto the far wall on the other side of the Emancipation Grill.*

You will have a very small patch of surface to aim for, with the added hindrance of falling. To line up the shot correctly, you should look into the portal before you walk into it. You should be able to see the patch of surface you will be aiming for. Line up the reticule beforehand so as soon as you step through the portal you can immediately fire to land the shot.

03 *After having placed the portal on the other side, walk through the bridge portal again. Once through, move your second portal onto the surface on your left. Make sure you are standing opposite the portal when you fire it, as the bridge will be reformed under you.*

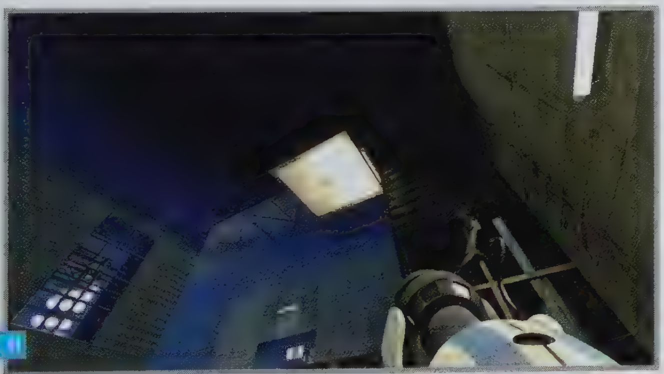
04 *Orange should walk along this newly formed bridge to the switch in the wall. Blue should get ready to move his second portal again back to the wall behind him, as soon as Orange presses the switch. Moving this portal means that the bridge will disappear from under Orange. Orange should press the switch, and then immediately jump to the left to land on the initial bridge being fired from the generator, to avoid falling to his death when Blue moves the bridge. This should result in the gel dropping onto the bridge.*

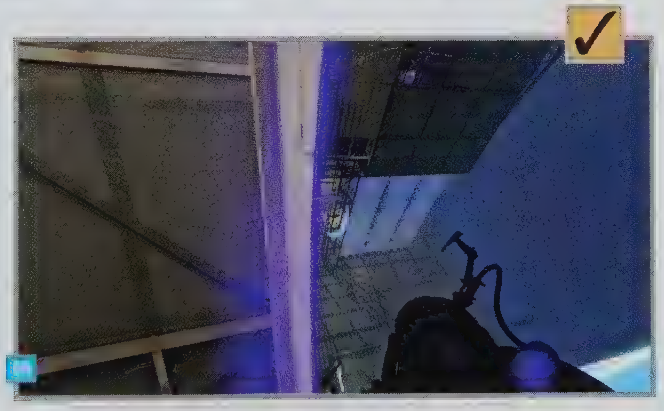
Room 2

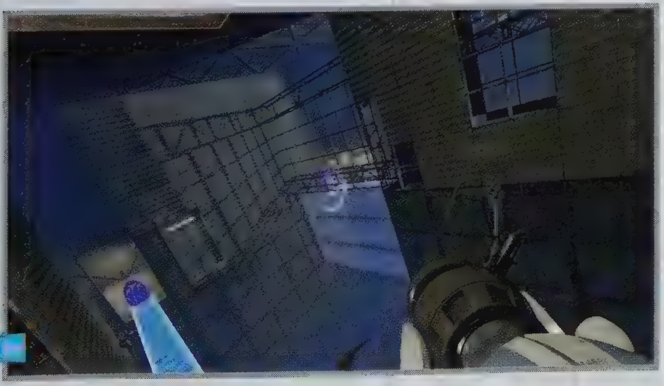
01 *Orange should walk along this newly formed bridge to the switch in the wall. Blue should get ready to move his second portal again back to the wall behind him, as soon as Orange presses the switch. Moving this portal means that the bridge will disappear from under Orange. Orange should press the switch, and then immediately jump to the left to land on the initial bridge being fired from the generator, to avoid falling to his death when Blue moves the bridge. This should result in the gel dropping onto the bridge.*

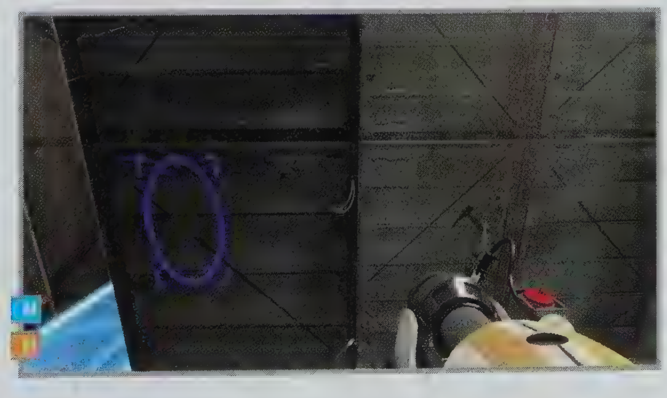
02 *Walk through the portal at the end of the bridge to end up on the bridge on the other side and jump up to the exit with Blue using the Repulsion Gel.*

✓









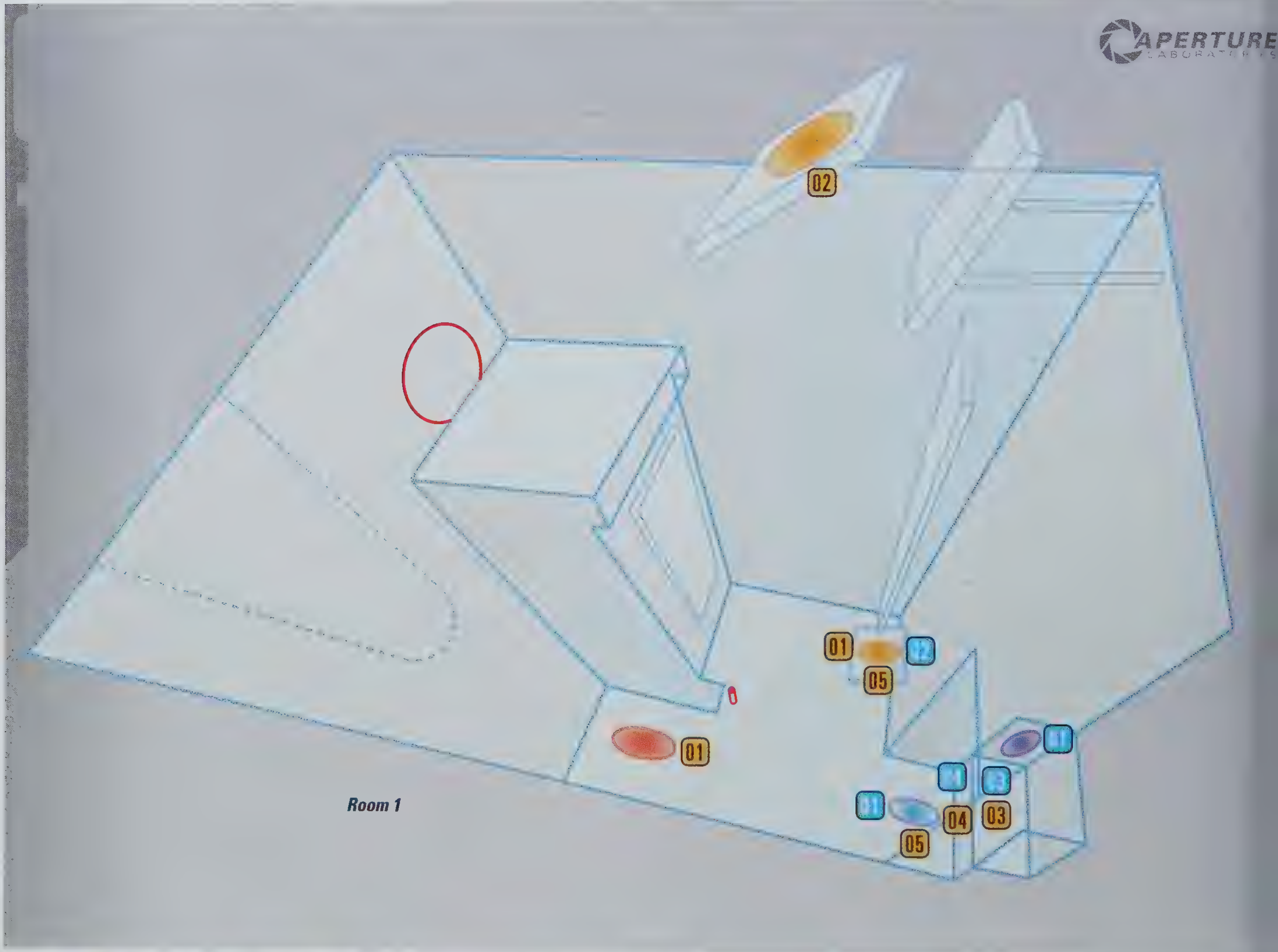
04

04/08

This chamber takes using Light Bridges as surfaces for gel coating to the next level. The first step is to master wall jumping using Repulsion Gel. The key is to get the gel to completely coat your two target surfaces. Also remember you can place your Light Bridges vertically, essentially turning them into makeshift walls. The first room will also require you to make use of some old school flinging action.

Room 01 Summary | To clear this puzzle you will have to use the Repulsion Gel to climb to the top of the room via the two narrow walls adjacent to each other.

07_111



Room 1

01 Place a portal on the floor under the alcove and one on the walls of the alcove.

02 Once Orange is in the alcove, move your portal from the alcove wall to the bottom angled surface.

03 Portal up to the alcove once Orange starts bouncing.

04 You can now perform the fling and bounce to the top, going into the next room.

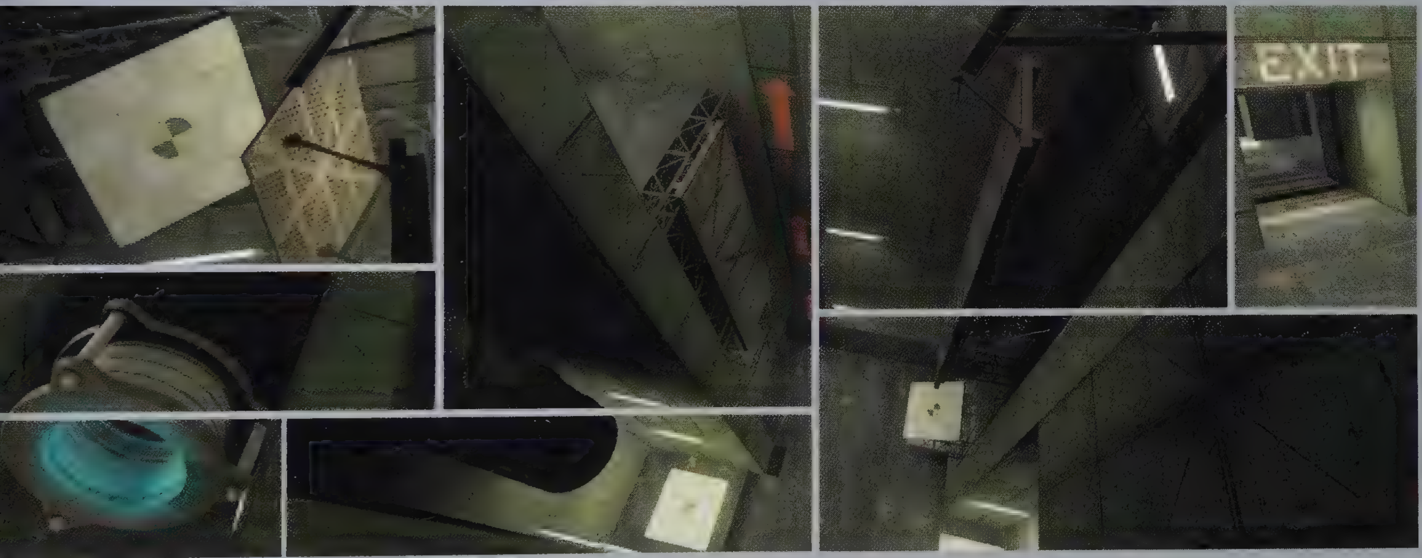
01 Start by placing a portal under the gel dispenser and the exit portal on the angled panel under the two adjacent tall walls.

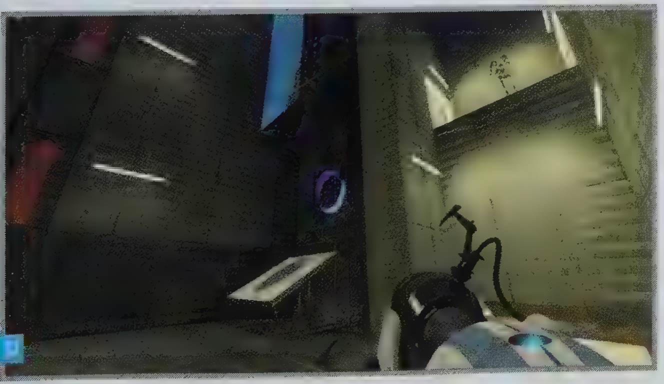
02 Press the switch to dispense the gel, then place the exit portal on the angled surface on the ceiling and dispense the gel again. Both walls should be fully coated with gel.

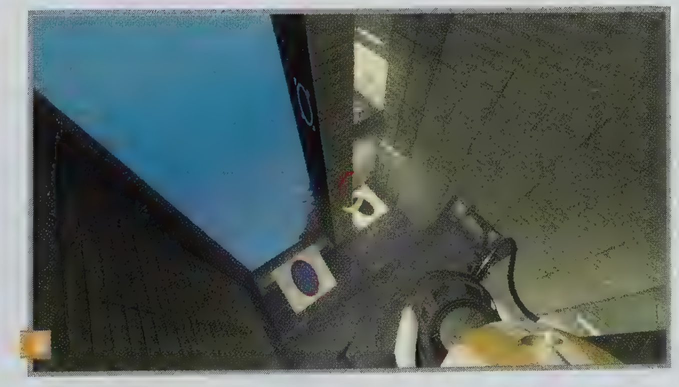
03 Step into Blue's portals to get to the alcove.

04 Now jump and fling onto the gelled walls, and bounce to the top.

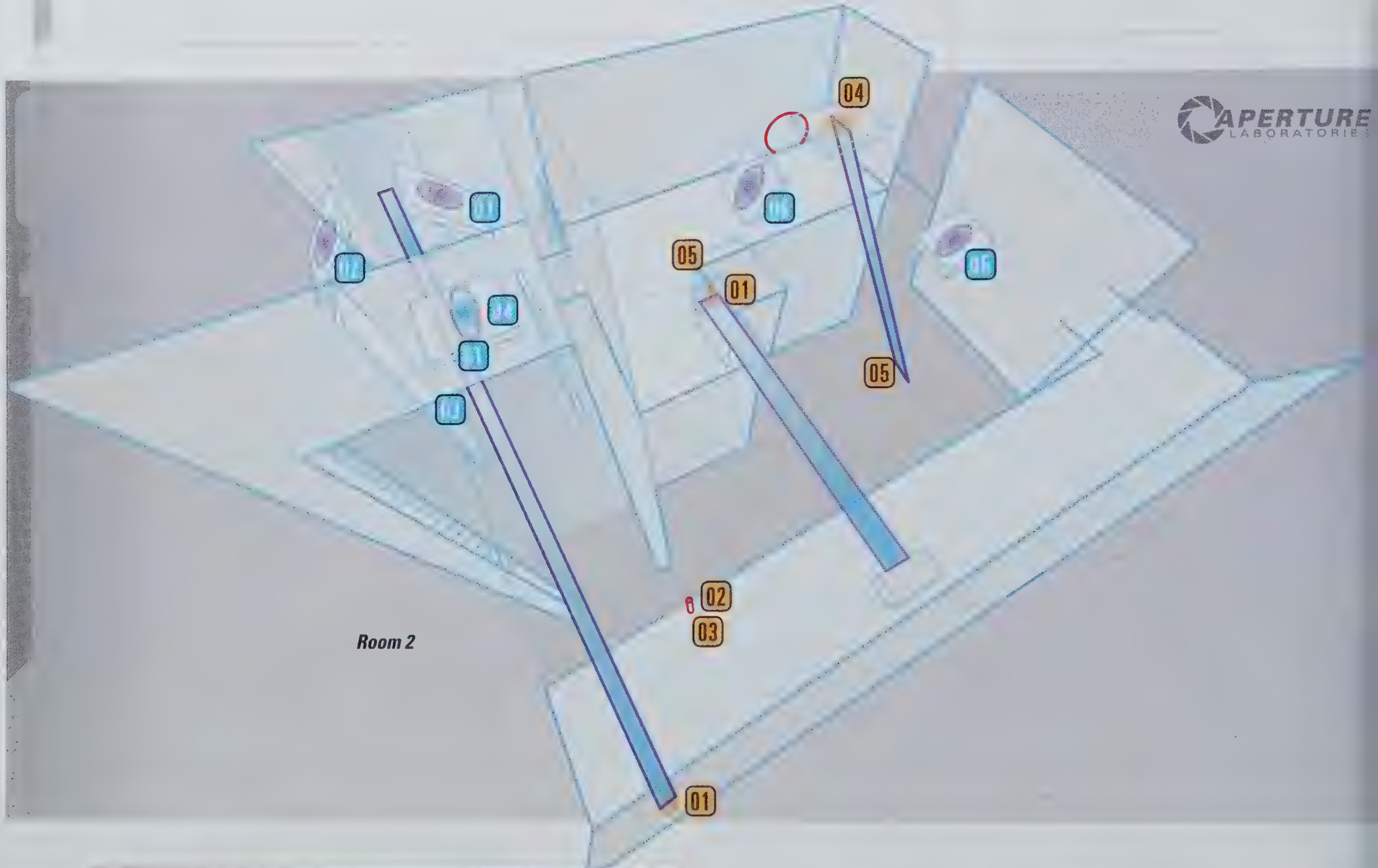
05 Once you get to the top, place a portal on the lower angled portalable surface and another underneath the alcove, setting up the fling for Blue.





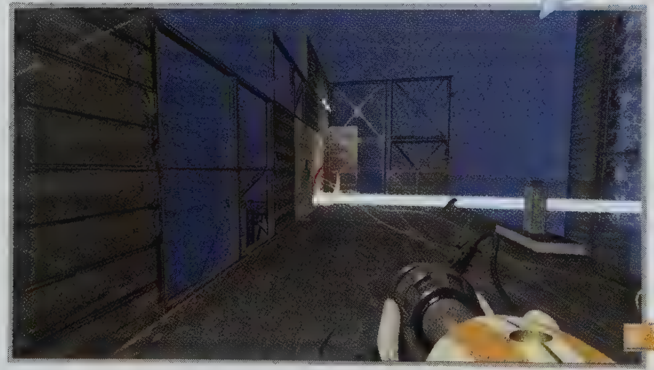


Room 02 Summary | To get to the top exit area, both players must get to the top. To do this, you will have to bounce off various surfaces using Repulsion Gel to coat them. Remember that Light Bridges can also be coated with gel.



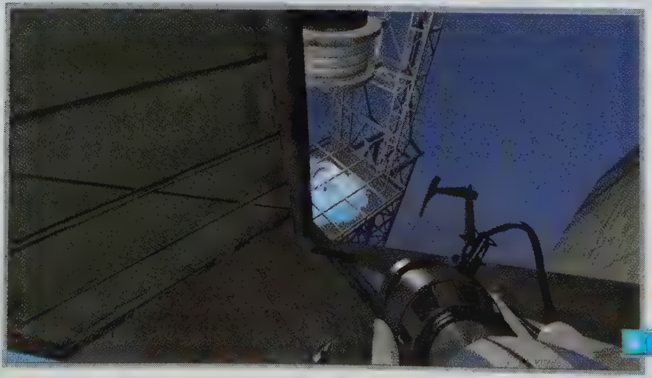
Room 2

01 First retrieve the bridge by firing a portal at its end, then an exit portal on the far portalable surface on the left, next to the switch.



01 Walk across this new bridge through the Emancipation Grill and place a portal under the gel dispenser at the end of the bridge, and an exit portal on either of the 2 angled surfaces directly above you.

02 Press the switch near the start of the bridge to dispense the gel, which will cover one of the walls with Repulsion Gel.



02 Once one wall is covered, move the portal onto the other angled surface and get Orange to hit the switch again.

03 Once both walls are fully coated in gel, jump onto one of the walls, bouncing to the top area.

04 When you get to the top, place a portal under the gel dispenser again, which you should still be able to see from the top area.

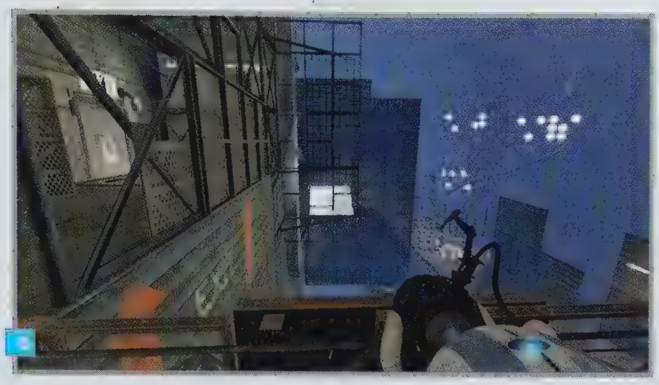
05 From here, walk over to the edge overlooking the main area and look at the 3 portal-able panels above the light bridge area. Place a new exit portal on the lower one.

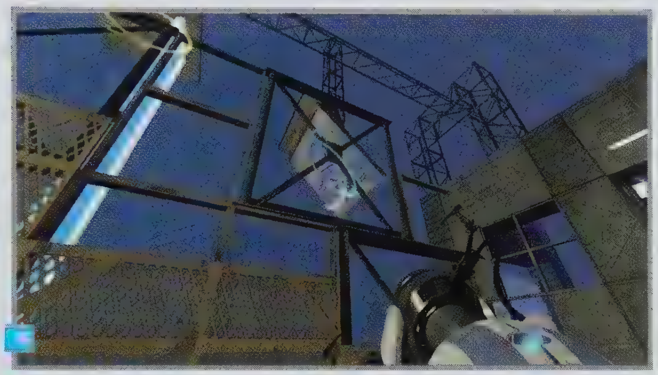
06 Now you must place your exit portal on the angled surface directly above, closest to you.

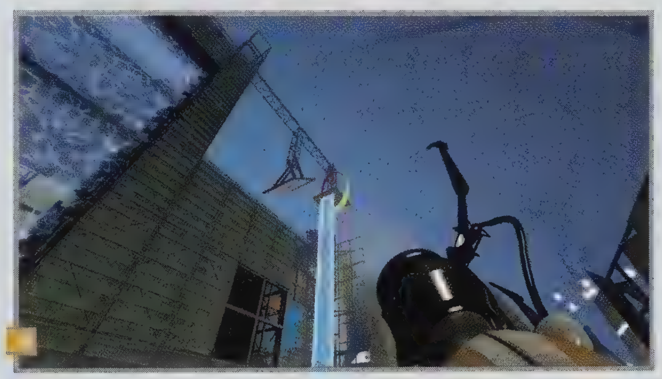
03 Now release the gel again.

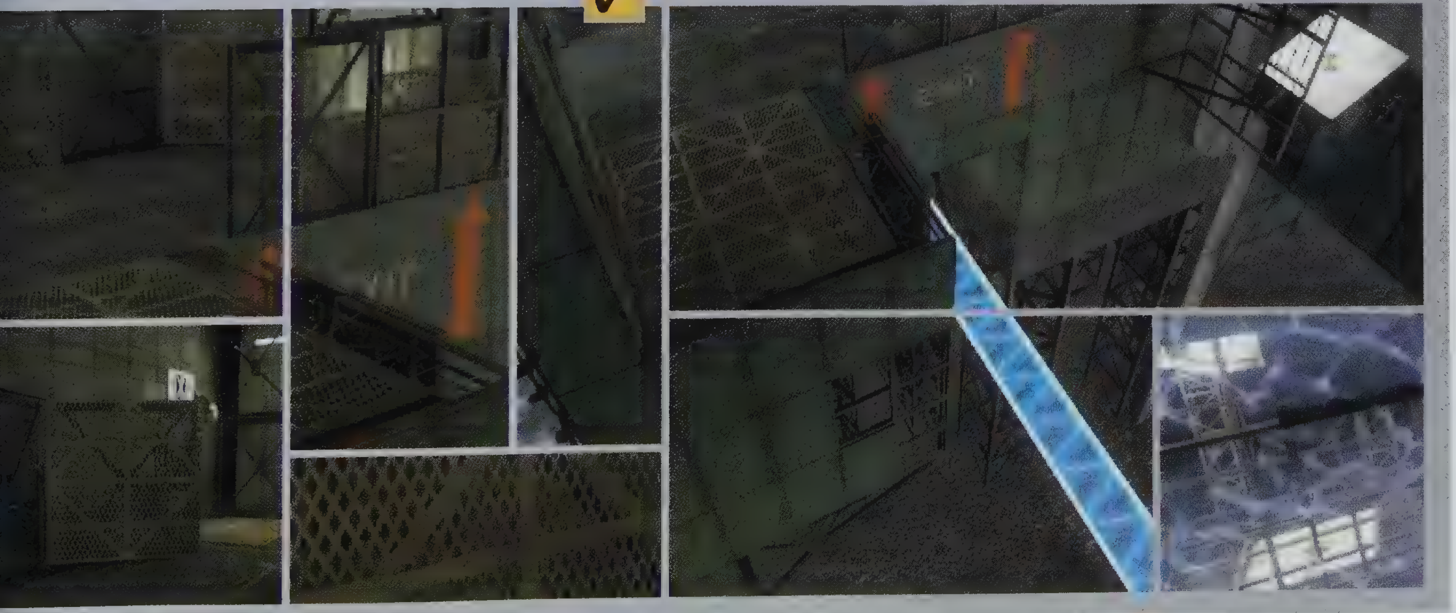
04 Now place your exit portal on the flat surface on the ceiling near you, creating a vertical bridge, and then release the gel again.

05 This should cause the bridge to be coated with Repulsion Gel. Now you should be able to jump between the wall and gel covered vertical bridge to the top and then complete the area.









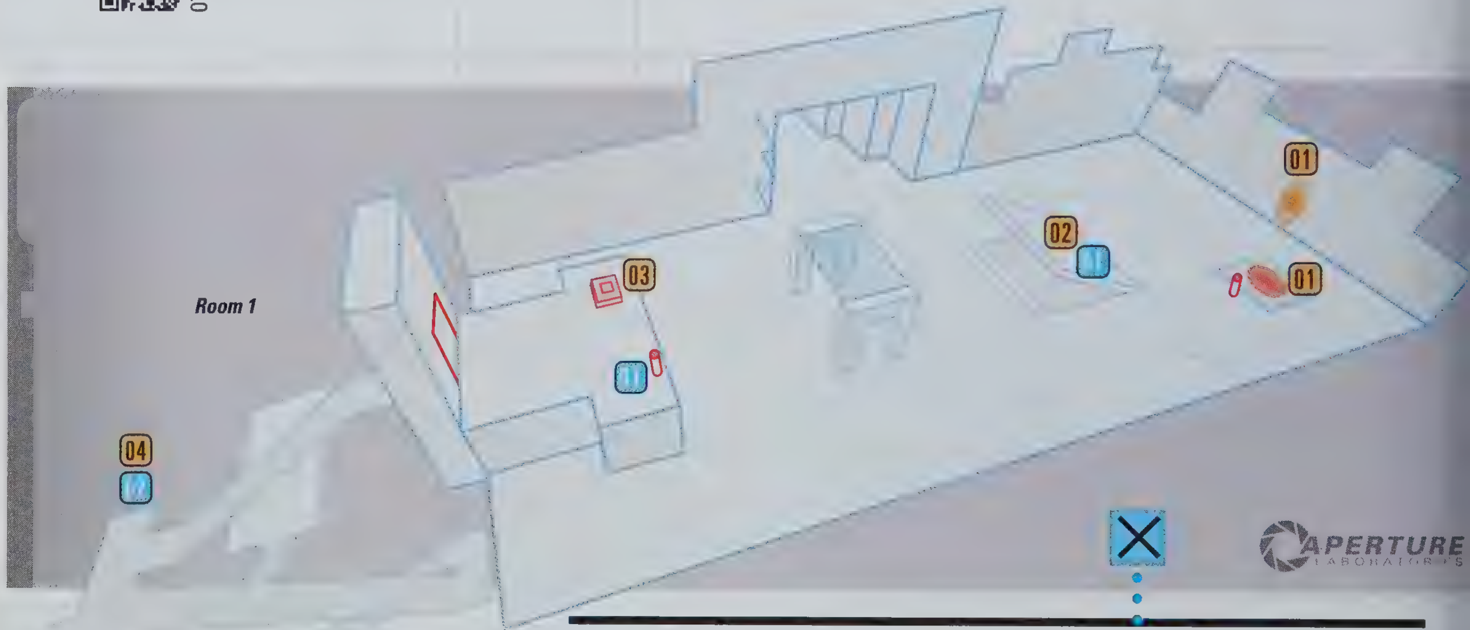
05

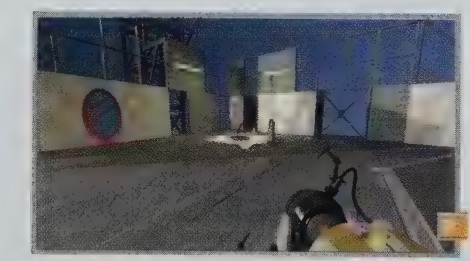
05/08

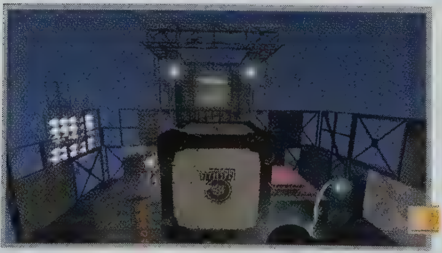
07_112

This chamber brings You Propulsion Gel into the equation. As you may know from the single player mode, the Propulsion Gel creates a frictionless surface for you to travel, substantially increasing your speed as you move along it. This increased speed can serve many purposes, such as allowing you to jump further or allowing you to reach a destination within a strict time limit. Both of these functions are used to complete this chamber. Remember, jumping at the end of ramps can give you that extra boost needed to get to where you want to go.

Room 01 Summary | To open the exit door, you must place a cube on the button that is on the raised area. You will have to get the cube over to the button before it is destroyed by the grill into which it falls, by catching it in mid-air.







Room 1

01 Use this gel to build speed up the ramp then jump off to reach the raised area at the end. Then get ready to press the switch to release the cube.

02 Both players should proceed onto a staircase that you can walk down to reach the next area. Walk part way down and then jump off the right hand side to land near the airlock dock to the next room.

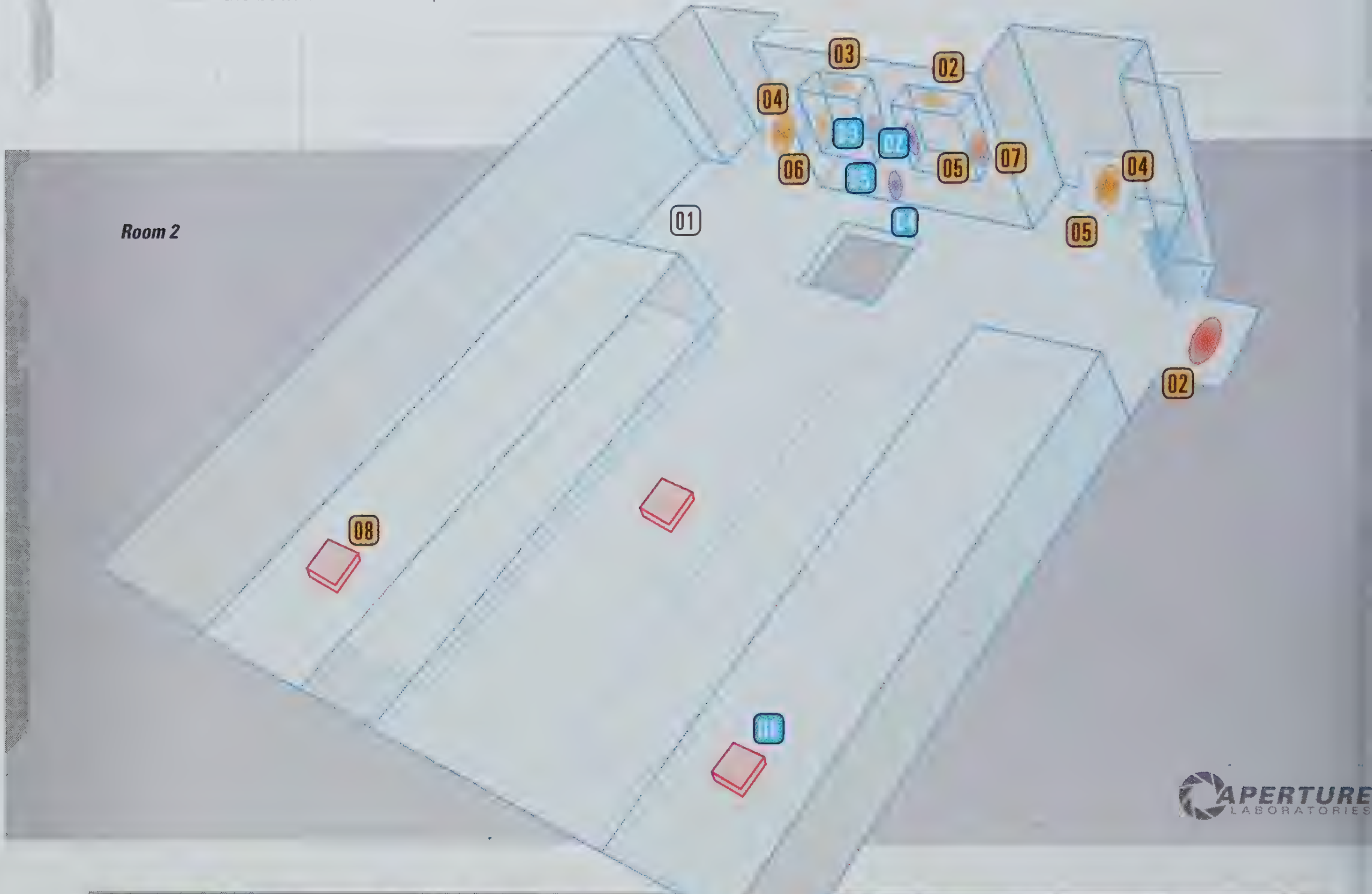
01 First, place a portal under the Propulsion Gel dispenser and an exit portal on the surface behind the ramp, and then release the gel.

02 You must do the same jump off the ramp, but time your jump so that you can retrieve the box that will fall from the box dispenser when Blue presses the switch to release it.

03 Tell Blue when to press the switch and then grab the box in mid-air. If you stand near the very start of the patch of ground that is covered in gel, and then begin to move after you hear Blue press the button, this should result in the correct timing needed to grab the box. Once this is done, place the box on the box button at the end and go through the door.

04 Both players should proceed onto a staircase that you can walk down to reach the next area. Walk part way down and then jump off the right hand side to land near the airlock dock to the next room.

Room 02 Summary | The raised areas have crusher traps and buttons at the end of them which both players must stand on to release a cube. You must find a way to get to the raised areas and avoid the traps to press the buttons. This will require a lot of momentum generated by the Propulsion Gel.


Room 2
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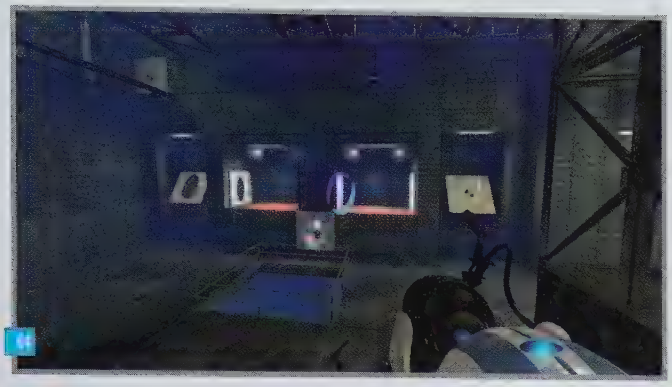
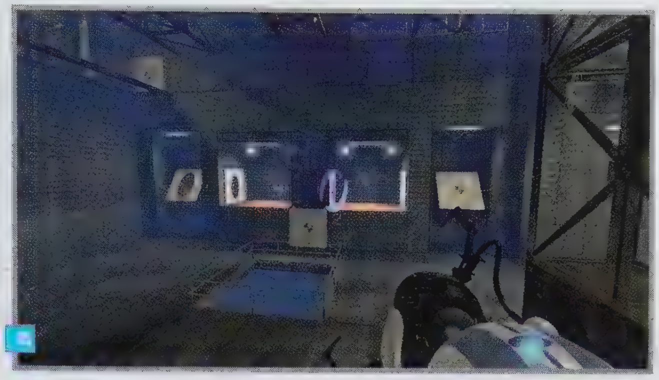
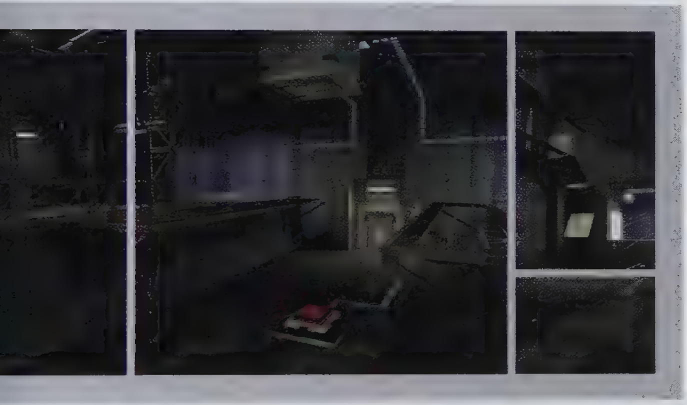




Room 2

01 Both players should drop down into the main area.

02 Look towards the wall, where you will see the 2 small alcoves that are side by side. The central wall dividing them has portalable surfaces on both sides; place your two portals on either side of these walls so you can pass through it.



03 Now you must retreat to the far left end of the alcove, and go through the portals that have been set up at maximum speed and then jump when passing through the last one to reach the trap pathway. You must jump at the end or you won't reach the ledge. This must be timed very carefully, or you will be crushed. The correct timing is to begin moving a second before the crusher comes down.

04 Move the portal that was on the right side of the middle wall to the lower surface so Orange can step through it into the left alcove.

05 Once Orange is in the alcove, move your portal back to the right of the middle wall.

06 Once both of you have made the jump, stand on your respective buttons and a cube will be released. Either player can now place the cube into the receptacle and exit the area.

02 Head towards the Propulsion Gel dispenser and place a portal underneath it, then place an exit portal on the ceiling of the small alcove on the right. Then release the gel.

03 Do this for both alcoves, so they are completely covered in the gel. Move your portal onto the leftmost wall and release the gel again, ensuring there is enough gel.

04 Next, place the exit portal for the gel on the far left angled surface on the wall and then release the gel. Do the same thing for the far right angled portalable surface.

05 Portal Blue up to the first alcove on the left. Once he is up, place a portal on the far right alcove wall and an exit portal on the angled surface on the right that will shoot him to the spike trap pathway.

06 Now place your portals on the left side, one on the angled surface and one on the left alcove wall. Then step through the portals after Blue places them.

07 Retreat through the portals to the far right of the alcove so you have enough space to run up and perform the jump.

08 Once both of you have made the jump, stand on your respective buttons and a cube will be released. Either player can now place the cube into the receptacle and exit the area.

✓

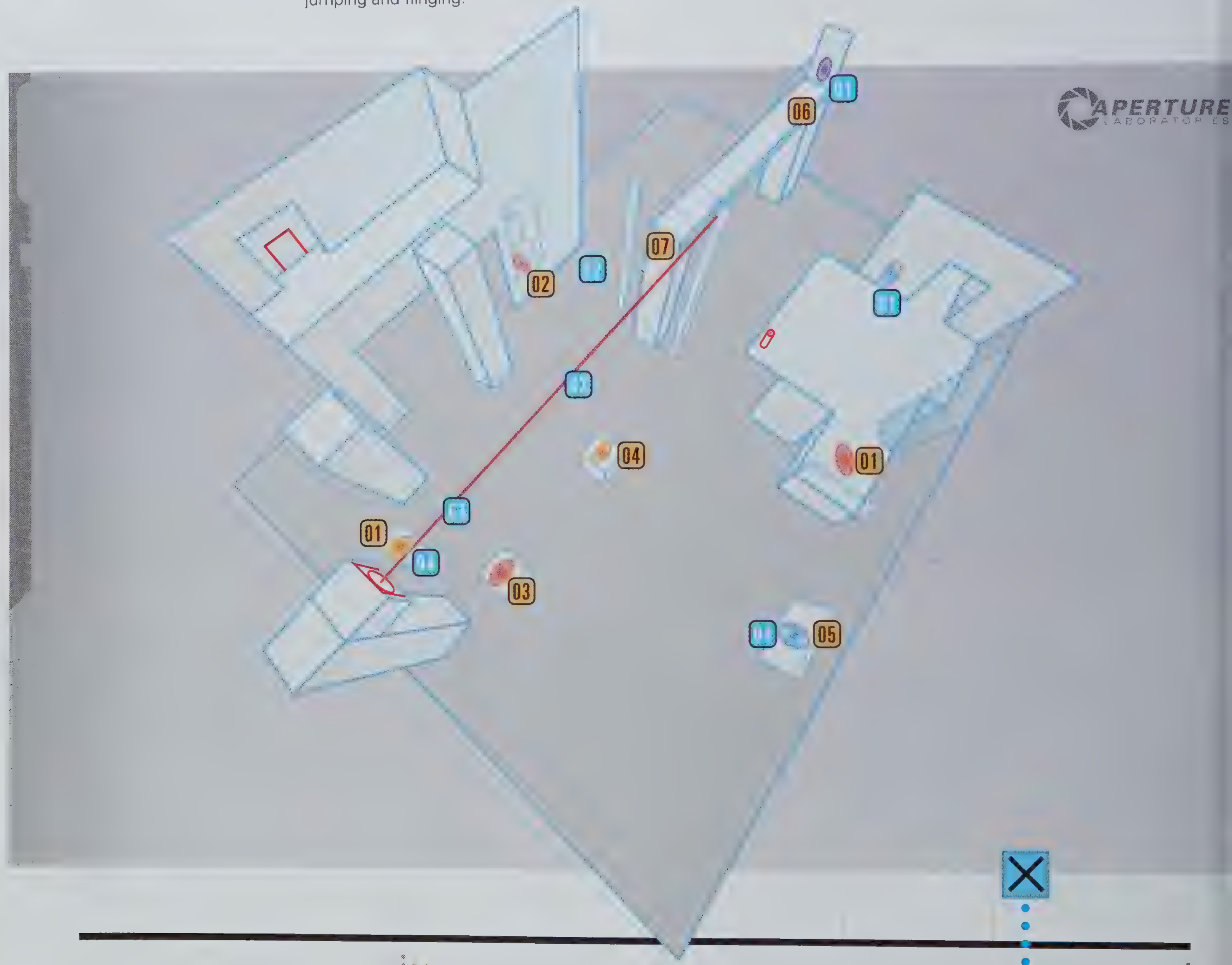
06

06/08

07_113

This chamber will test the limits of your dexterity, timing and reflexes. It combines some complicated flinging techniques with the velocity of Propulsion Gel induced movement. This is all to deal with the key obstacle in this chamber, the nest of turrets in the center that will block all attempts made to reach the exit. Use the layout of the chamber, the ramp and angled surfaces, to give you an idea of the sequence of events required to first deal with the turrets and then make it across.

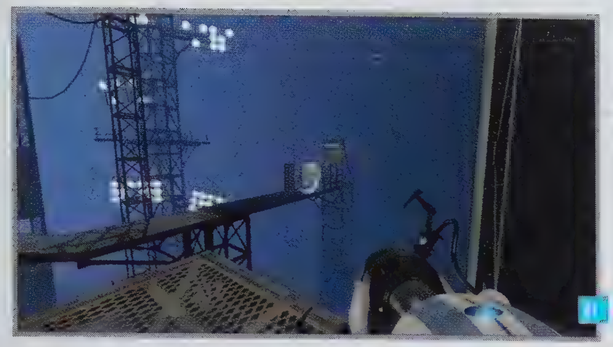
Room 01 Summary | The goal of the chamber is to fling over to the other side where the exit door is. To do that, the turrets must be eliminated. The only way to do this is to redirect the Discouragement Beam into the turrets. This will require a combination of Propulsion Gel jumping and flinging.

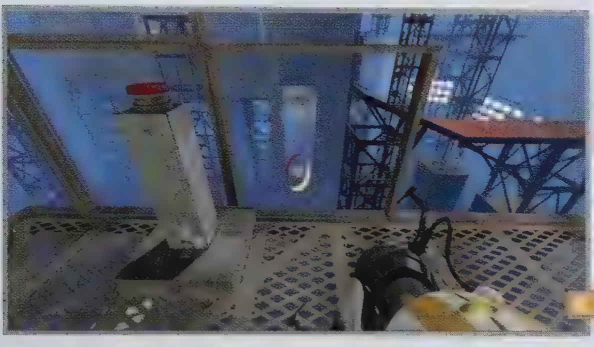


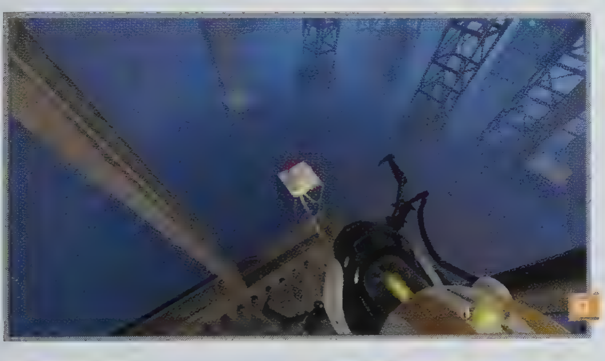
01 Begin by placing a portal under the gel dispenser and an exit portal on the far angled portalable surface near the Thermal Beam emitter. Then dispense the gel.

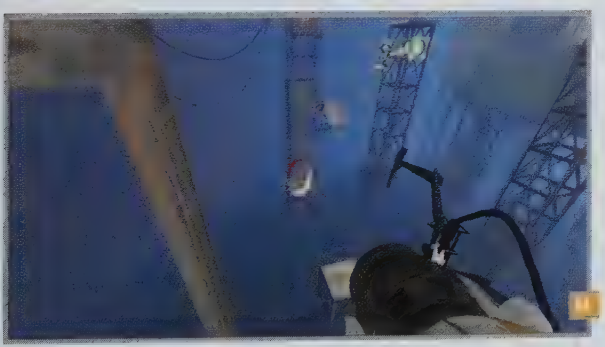
01 Meanwhile, portal yourself to the bottom of the ramp that has just been covered in gel via the portalable surfaces on the starting area and at the base of the ramp.

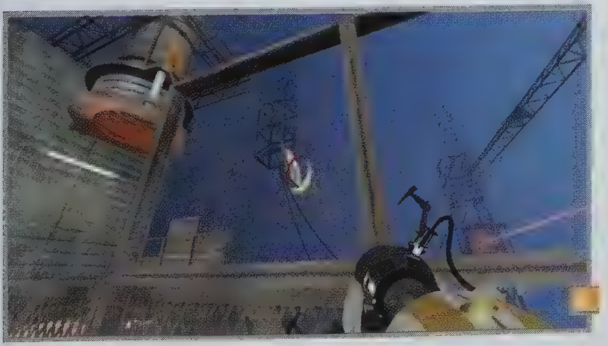
02 Now move the portal that was under the gel dispenser to under the Discouragement Redirection Cube dispenser that is on the far end of the chamber. Then, press the button to have the cube released.











02 After the cube has been dispensed, you must run up the gelled ramp and grab the Discouragement Redirection Cube in mid-air before it reaches the Emancipation Grill.

03 Immediately after the cube is flung out of the angled surface, you must quickly move the portal that is under the cube dispenser to one of the low, flat portalable panels that is under the Thermal Beam. Blue will grab the cube in the air and fling up through this new portal.

04 When Blue flings out of the floor panel, immediately move the first portal (the one that was placed on the angled surface) to the other low flat portalable surface that is under the Thermal Beam. If done correctly, Blue will bounce between these two portals in an Infinite Fling while carrying the Discouragement Redirection Cube.

03 Now you can use the cube to jump into the path of the Thermal Beam, redirect it and destroy the turrets that are in the center of the chamber.

05 Once the all the turrets have been destroyed, you must move one of the portals (the opposite one which Blue flung out of last) onto the far left angled wall that is high up, which will shoot Blue over to the other side.

06 Once Blue is at the exit area, portal down to the ramp area and wait for him to set up his portals.

04 From the exit area, place one portal on the angled surface that is opposite the ramp, and the other portal on the angled surface that is opposite the exit area.

07 You can now run off the ramp and jump through the portals, flinging yourself to the exit.

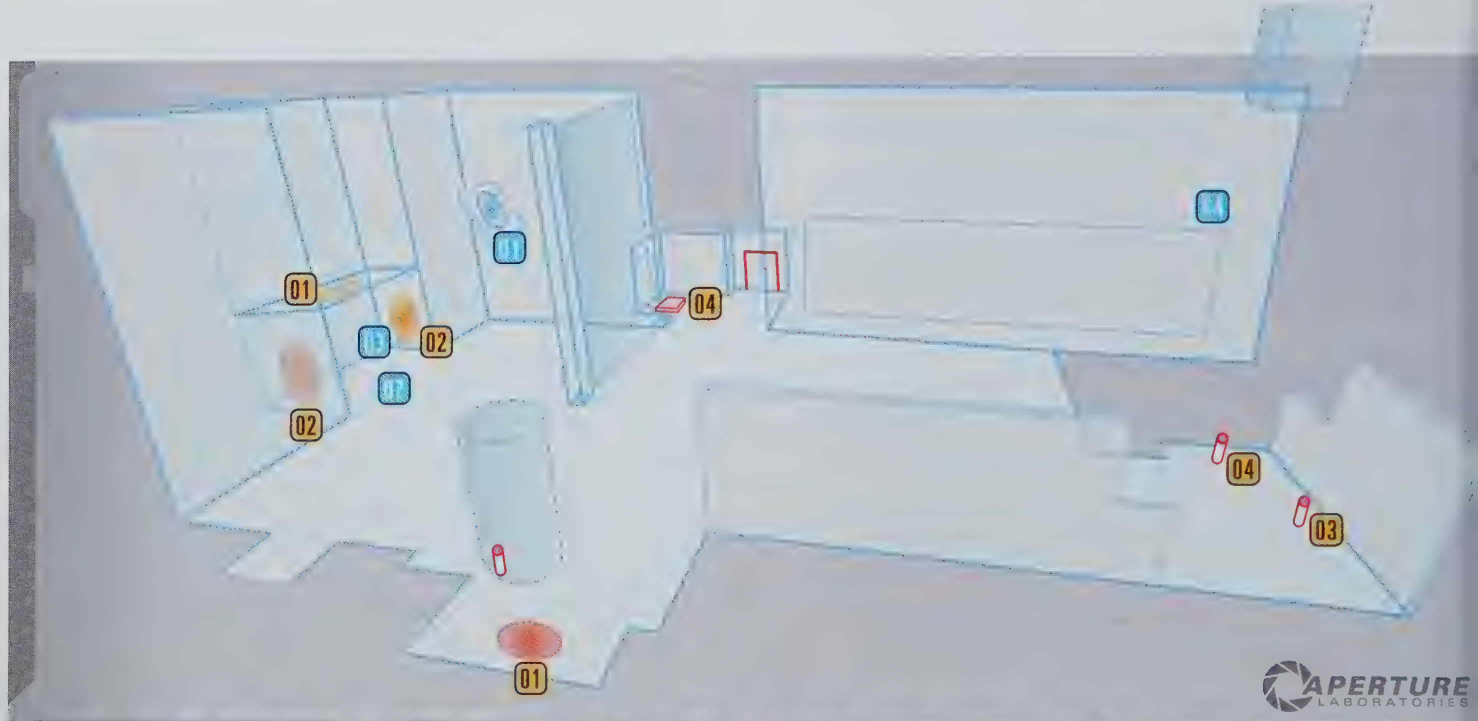
✓

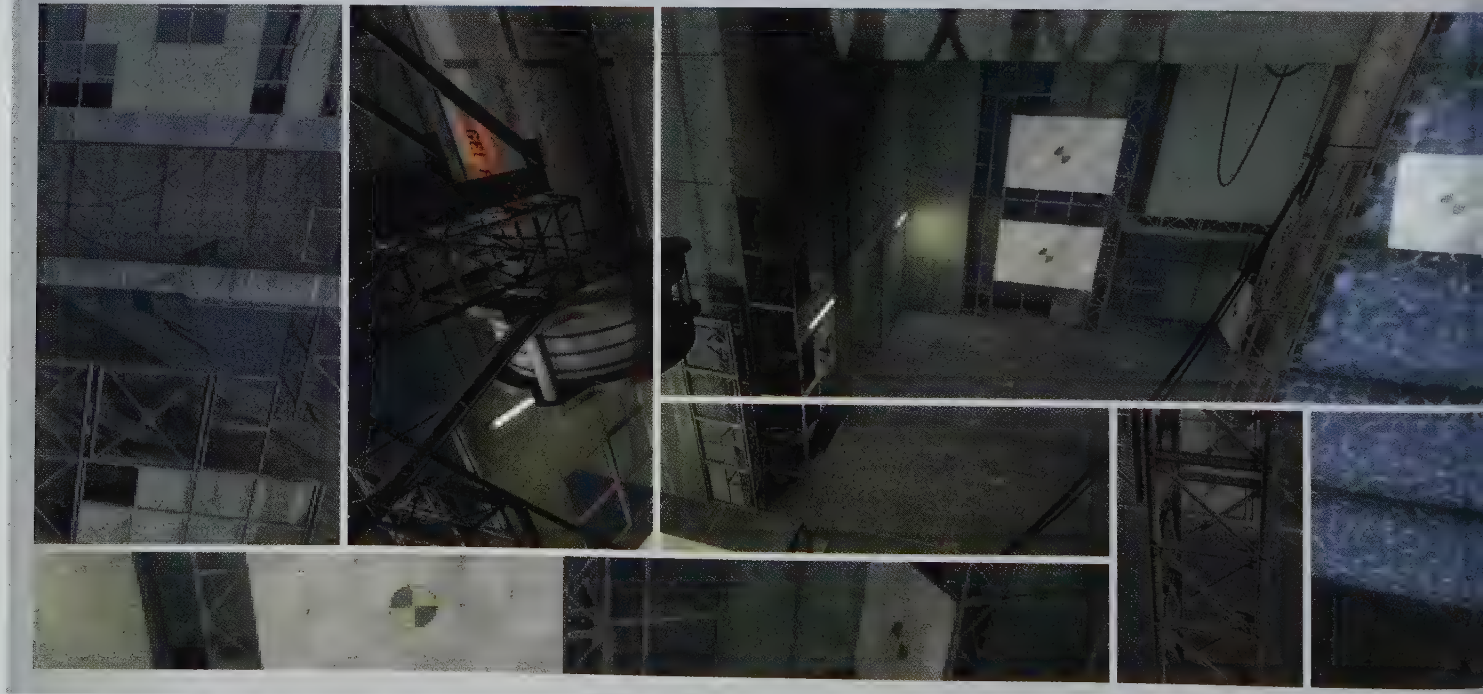
07

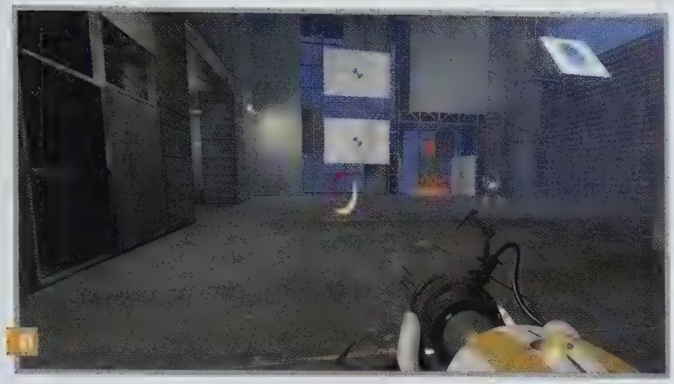
This chamber can be tackled in a few ways, but it's primary purpose is to try to teach you how to compensate for an Emancipation Grill blocking your line of sight, forcing you to either be in two places at once or make creative use of one player's portals. You will also need to re-think your rules for creating an Infinite Fling and understand that you do not always need a fling to set it up, or to even be in the air. Your timing will also be put to the test, with switches that are time-sensitive. Pre-planning and communication are a must.

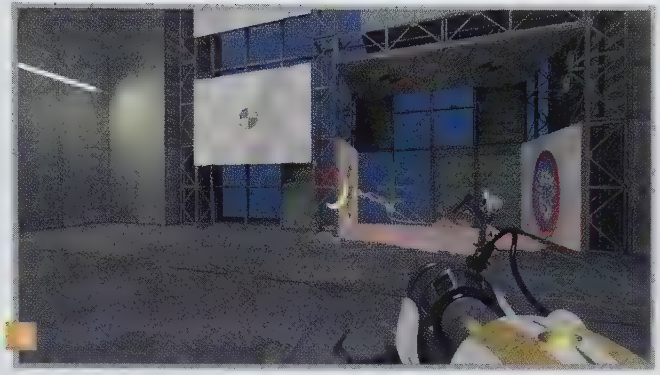
07_114

Room 01 Summary | The two key elements to solving this chamber are first being able to create enough momentum to be able to fling to the raised bridge, and then figuring out a way to actually be able to place the portals necessary to create the fling.









01 Begin by placing a portal onto the high angled portalable surface that is on the wall to the left of the Emancipation Grill.

02 Now step into the alcove and keep running through the portals placed there, creating a running Infinite Fling.

03 As soon as Orange has raised the bridge, you must fire your exit portal onto the wall you are running into, overwriting Orange's portal. You must make sure to fire your second portal, not the one that is already on the angled portalable surface. If done correctly, you will be flung onto the bridge.

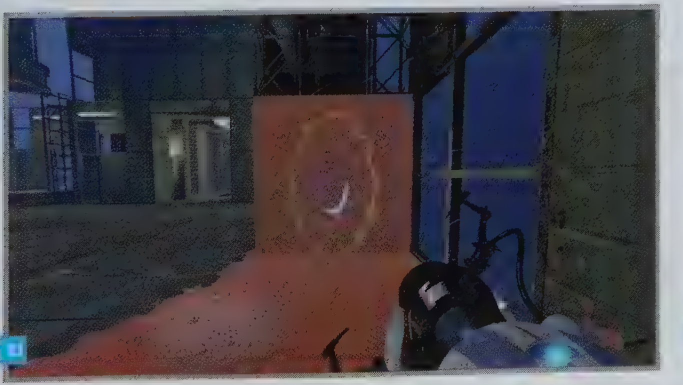
04 Once you have grabbed the cube, retreat back over the bridge and jump down, placing the cube in the receptacle. Both players can now exit the chamber.

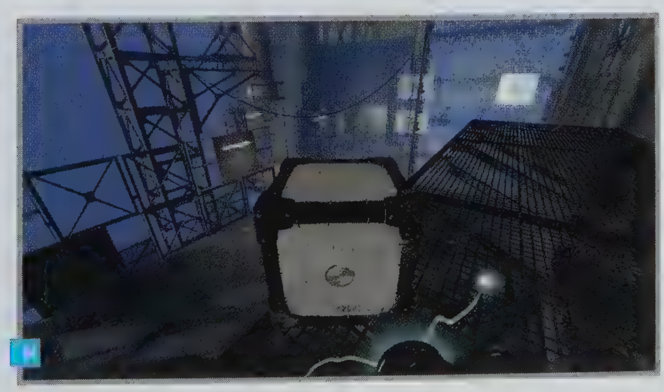
01 Place a portal under the gel dispenser. Next, place the exit portal in the little alcove area that has portalable surfaces on all sides and cover it with gel.

02 Once the alcove has been sufficiently coated with gel, fire portals onto both the left and right walls of the alcove. Then head over to the two switches on the other side of the chamber.

03 You must now press the switch that raises the bridge.

04 Now wait until Blue gets to the end of the bridge and then press the cube dispensing button so he can grab it as it falls.





08

08/08

07_115

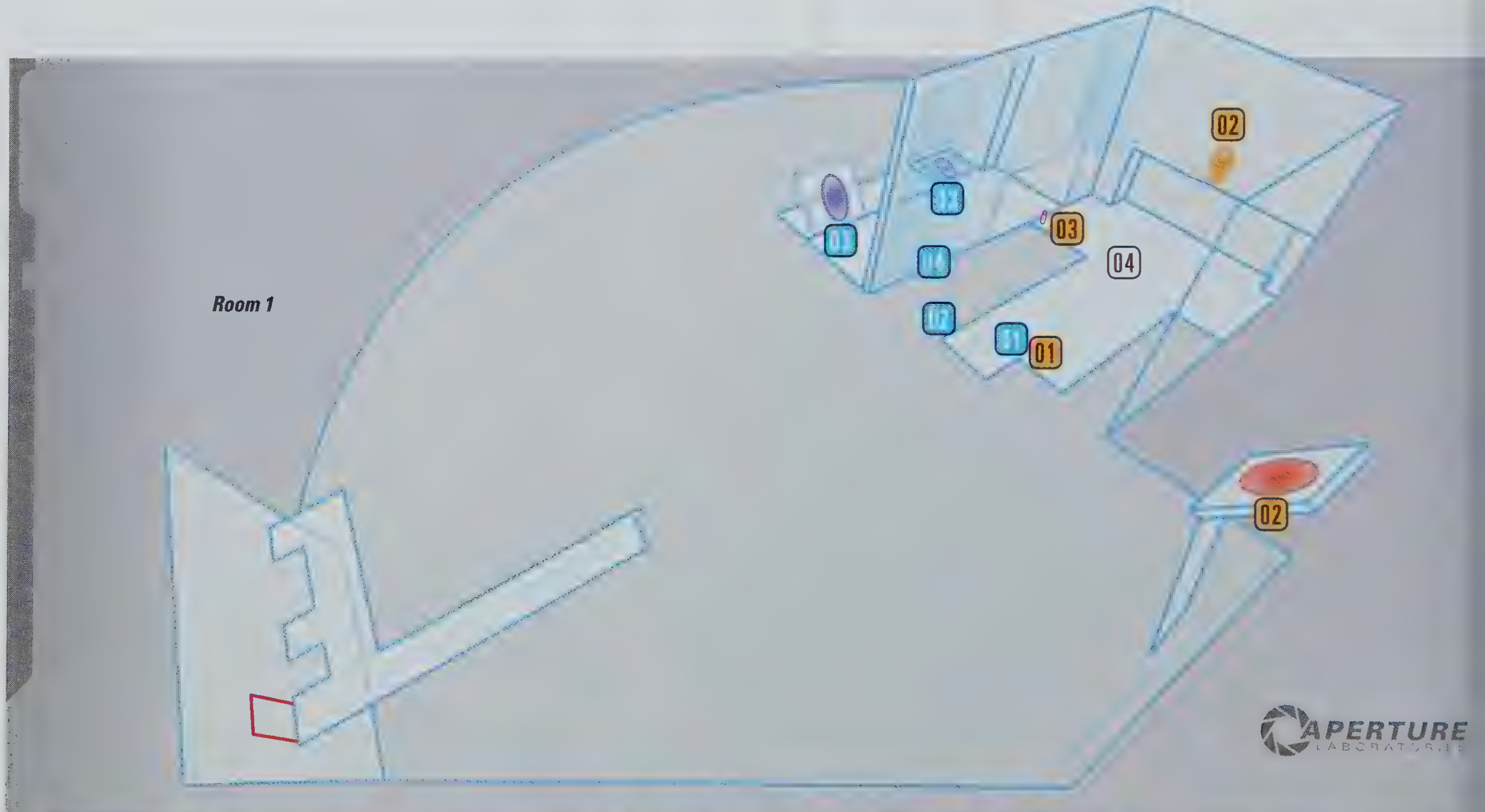
The final chamber in the Cooperating Testing Initiative will require the use of almost every game element and technique you have encountered thus far.

The purpose of the first room is really only to remind you of two important facts that you will need to remember in the final main room; that turrets can be dislodged by dropping Repulsion Gel onto them, and that the speed boost given by the Propulsion Gel can be combined with the jumping capabilities of the Repulsion Gel to cover massive distances.

The third, final room is really three rooms in one. You will need to employ a myriad of techniques to succeed, including: Using Propulsion Gel to create grounded flings, using the frictionless properties of the gel to interact with cubes, blocking Thermal Beams in sequence to interact with objects elsewhere, using Excursion Funnels to transport gel, and using Repulsion Gel to bounce along both floors and walls. There are also some timing sensitive puzzles that you will need to be sharp to solve.

Good luck!

Room 01 Summary | The aim of the room is to use both Repulsion and Propulsion Gels to jump across the chasm over to the exit door on the other side.



Room 1

01 As the players come into the area, a turret will be immediately facing and firing at them. After a little while, some Repulsion Gel will be dumped on this turret automatically, knocking it off the edge. The cube that was next to it is irrelevant and not needed to solve the puzzle.

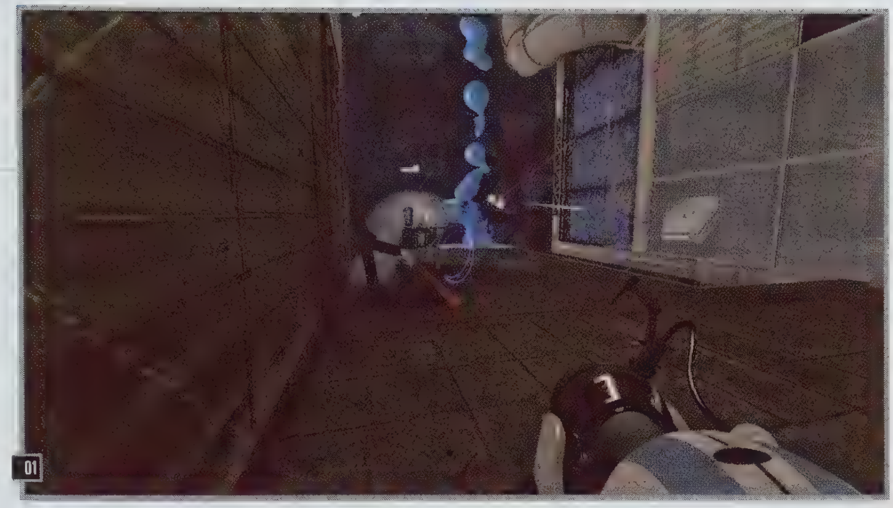
02 Once the turret is gone, you must use the gel on the end of the walkway to jump into the area on the right through the Emancipation Grill.

03 Place a portal under the Propulsion Gel dispenser, and another on the angled surface to the left of it.

02 Back at the starting area, put a portal on the angled surface on the far left, and the exit portal on the back wall behind you.

03 Press the button and the Propulsion Gel should spray onto the floor area preceding the Repulsion Gel, creating a gelled runway and allowing you to jump across to the other side.

04 Use the Repulsion Gel inside the room to jump back to the starting area, and then both of you can run across the Propulsion Gel and jump off at the end to reach the door to the next area.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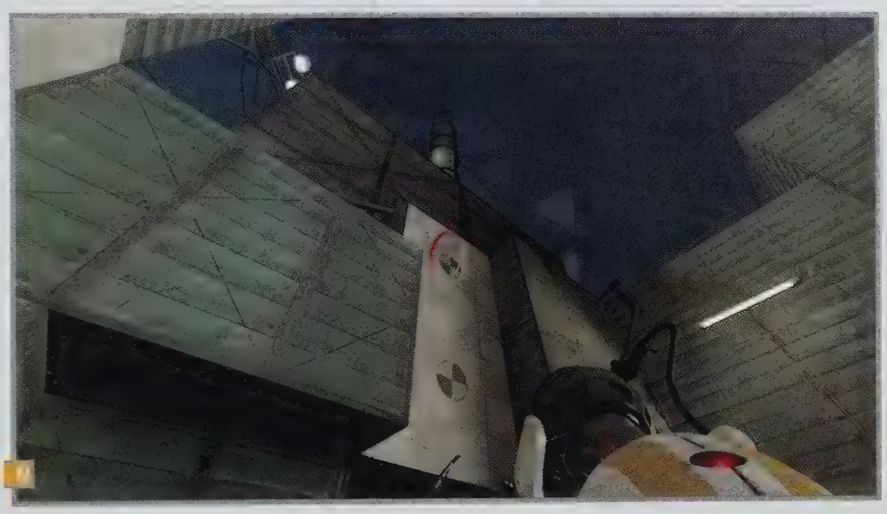
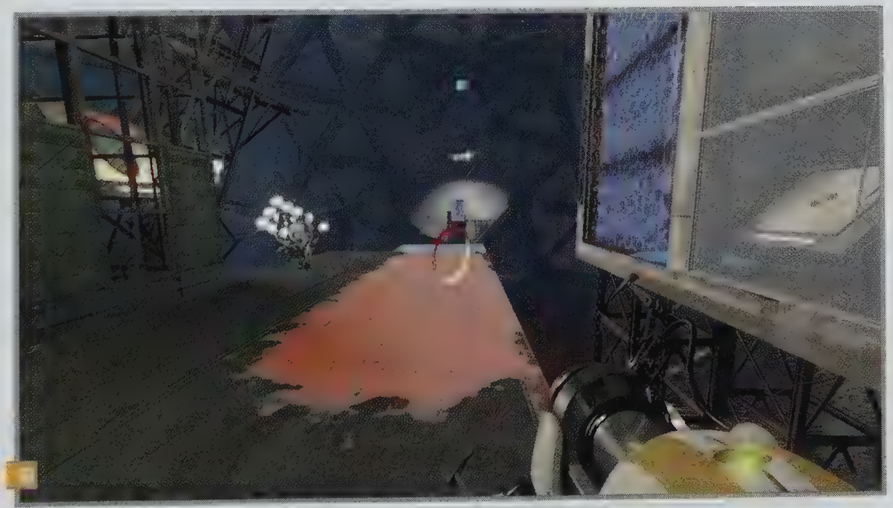
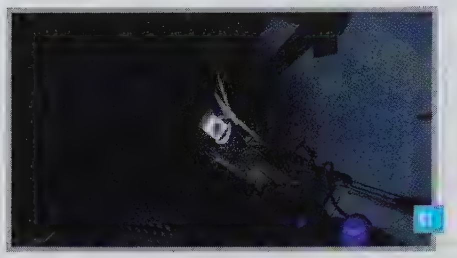
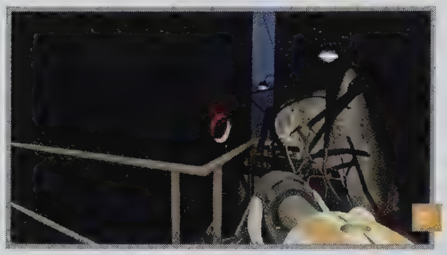
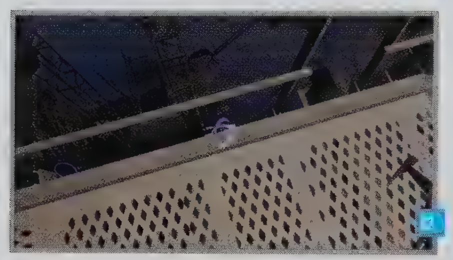




Linking Passageway Summary | This area is a short passageway to the final major room. You just need to fling over the broken staircase to the other side.







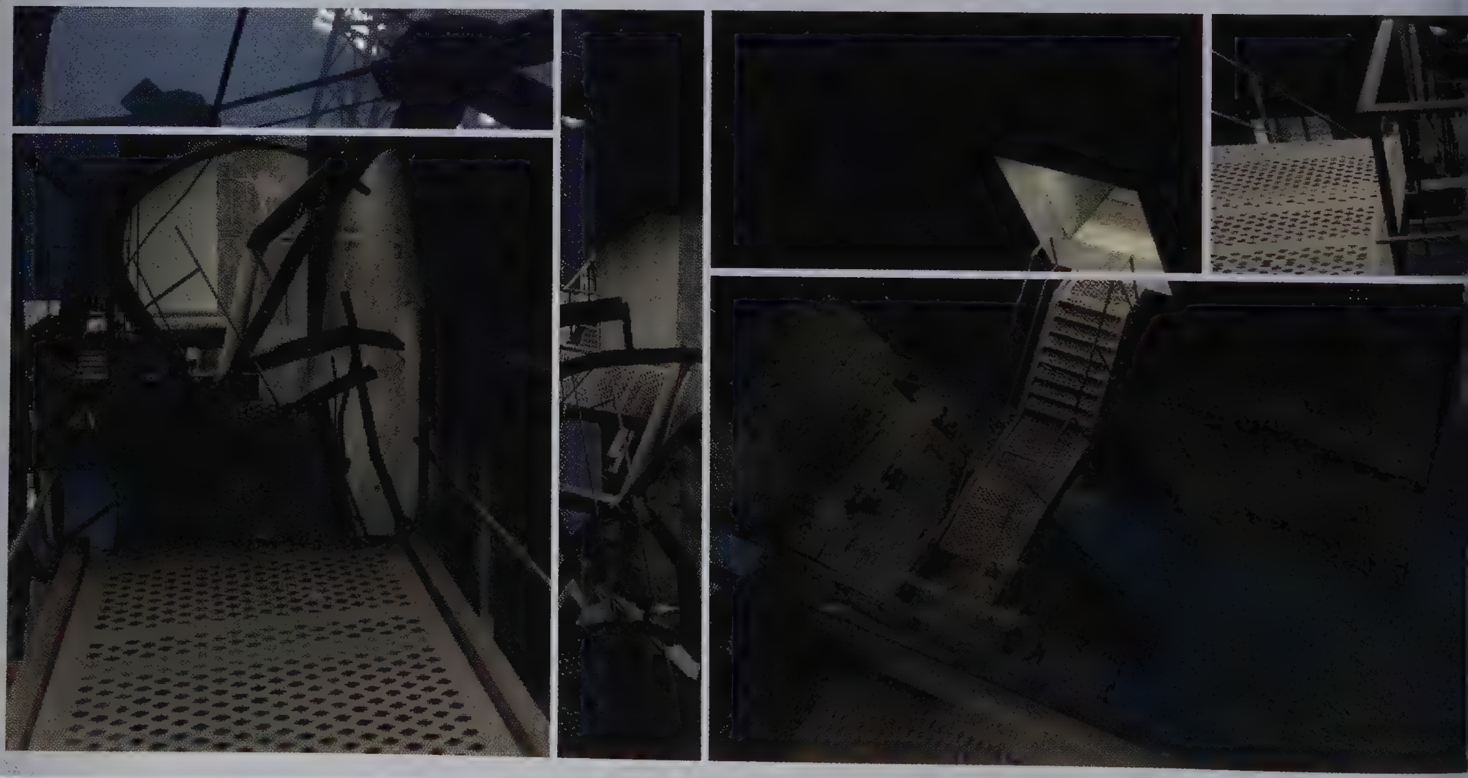
01 Head left onto the edge of the walkway you're on and look straight down. From here, shoot a portal onto the flat portalable surface down there.

01 Place your first portal on the pillar next to the walkway and the exit portal on the other side of the broken walkway on the right hand side.

02 Step through the portals just placed by Orange through onto the other side. Head slightly down the staircase and fire your exit portal onto the angled portalable surface you should be able to see from here, it is more or less directly under the staircase.

02 Now you can jump down through the first portal Blue placed and fling out of the other to the next area.

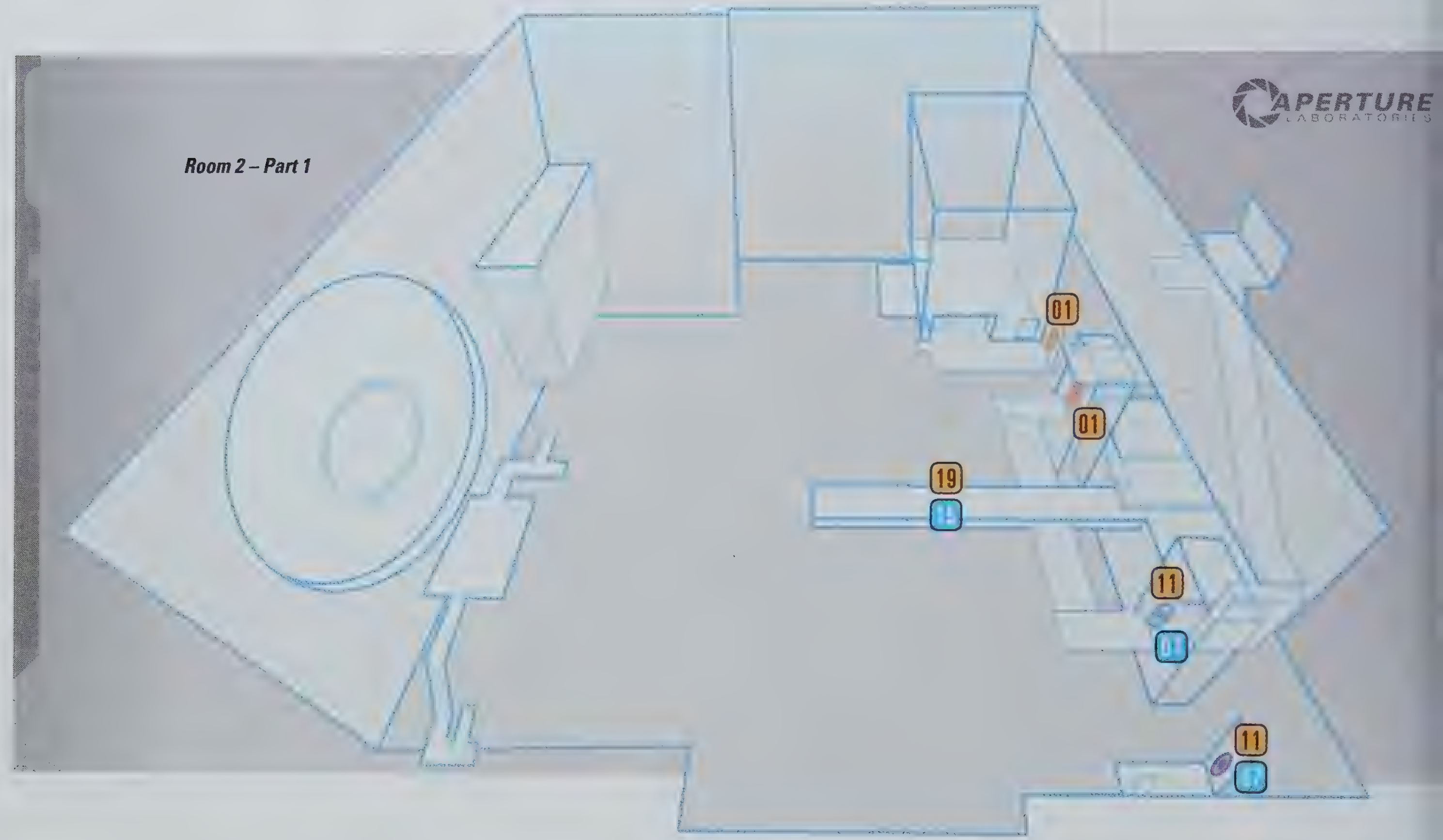
03 Go back to the first area and do the same.



Room 02 Summary | The final room of the co-op campaign is epic in scale, scope and magnitude. As soon as you enter it, you will be presented with your final target; to get to the huge door on the other side of the room. To do it, it will require a massive Propulsion and Repulsion Gel assisted jump. To pour both of the gels requires you to solve two major puzzles on the left and right sides of the room.

The room on the right requires you to block a series of Thermal Discouragement Beams in order to raise a temporary bridge that will allow you to pull a pair of levers to drop the first gel.

The room on the left requires you to find a way to bounce up to the top of the room using Repulsion Gel and funnels to pull a lever that drops the final batch of gel.



Room 2 – Part 1 & Part 2

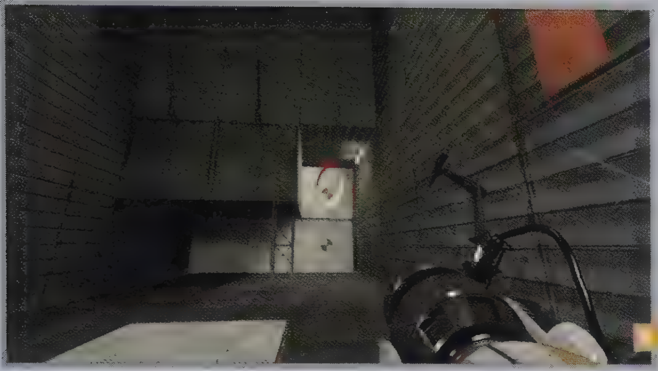
01 First, place a portal over to the right area just before the Emancipation Grill and another portal on the portalable wall to the right. Both players should step through and pass through the Emancipation Grill into the room.

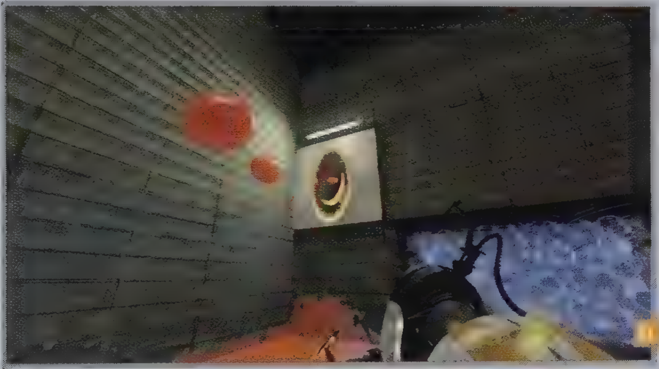
02 Start by placing a portal under the gel dispenser on the left, and then place an exit portal on the far wall on the right.

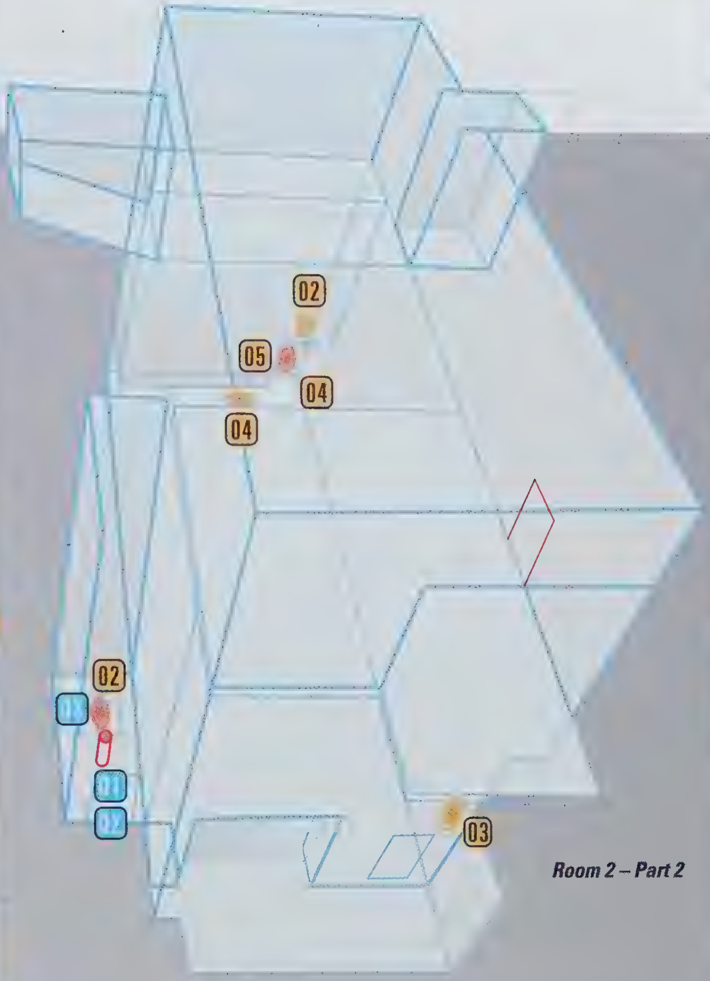
01 Walk over to the gel dispenser activation switch and press it.

03 Move your exit portal to the rear wall in a position exactly opposite to where it just was while the gel is being dropped. This will cause the right hand side of the room to be coated with gel, making a runway.

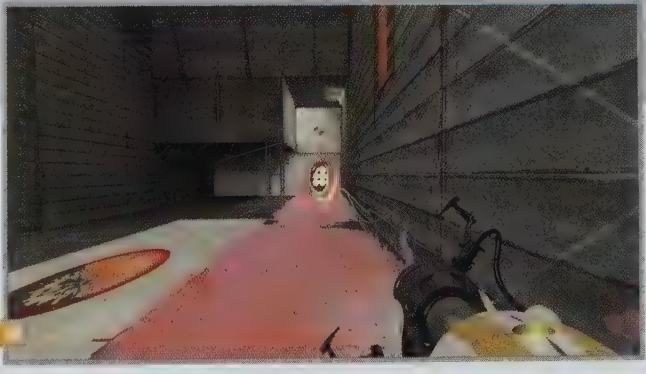
04 After that, place a portal at one end of the runway, and the exit portal on the floor to the left of the runway.

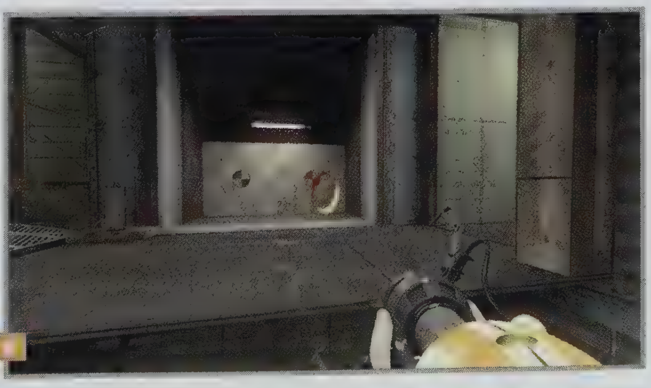






Room 2 – Part 2





05 Now dash through the wall portal at maximum speed and you will fling upwards.

06 As you reach the peak of the fling you should be able to see a portalable surface on the upper level above you, quickly fire a portal at it. Once you land the shot, place your opposite portal somewhere on the ground level and pass through to the top level.

07 Once there, find an opening with a cube dispensing switch next to it. It may be on the other side of the room. If it is, just portal over to that side. Then press that switch.

08 Turn around and place a portal on the portalable surface on the wall opposite the cube. Then look down to the lower level and place your exit portal under the gel dispenser again.

02 Once Orange has completed the above steps, press the switch to dispense the gel again. This will coat the cube above with gel, causing it to slide down the ramp and allowing Orange to pick it up.

03 Now go through Orange's portal that is under the gel dispenser and you will end up on the top area.

04 When you get to the top area, you need to place a portal on the other side of the room and one on the side both of you are standing. Then both of you must go through.

05 To the left is a gap in the wall which has a portalable surface that you can get to. Move a portal to that surface, leaving the one that is already on the wall behind you.

06 Now both of you should begin running when Orange arrives so both players get to the levers at roughly the same time. Get to the levers and pull them simultaneously.

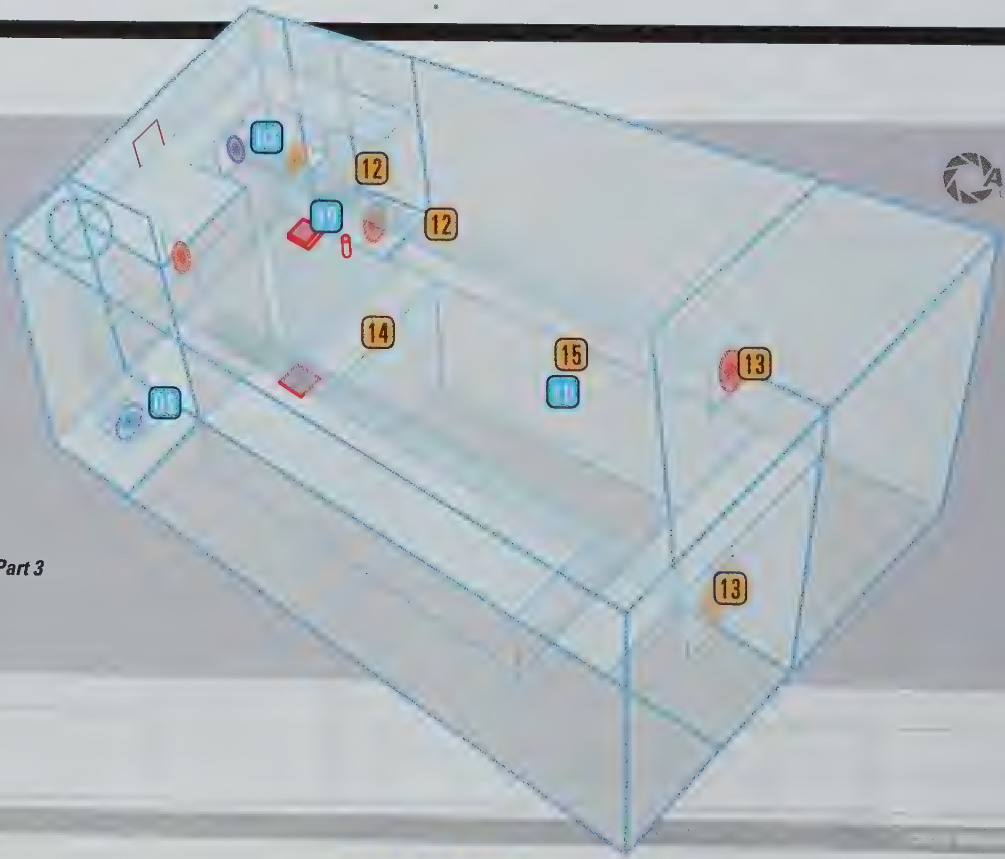
07 This will have the effect of covering the central area with Propulsion Gel; the first of two steps required to complete the chamber. The door leading to the left side of the chamber will now have opened. Either one of you can now place portals to get to this area and then both of you should proceed through the Emancipation Grill.

Room 2 continued

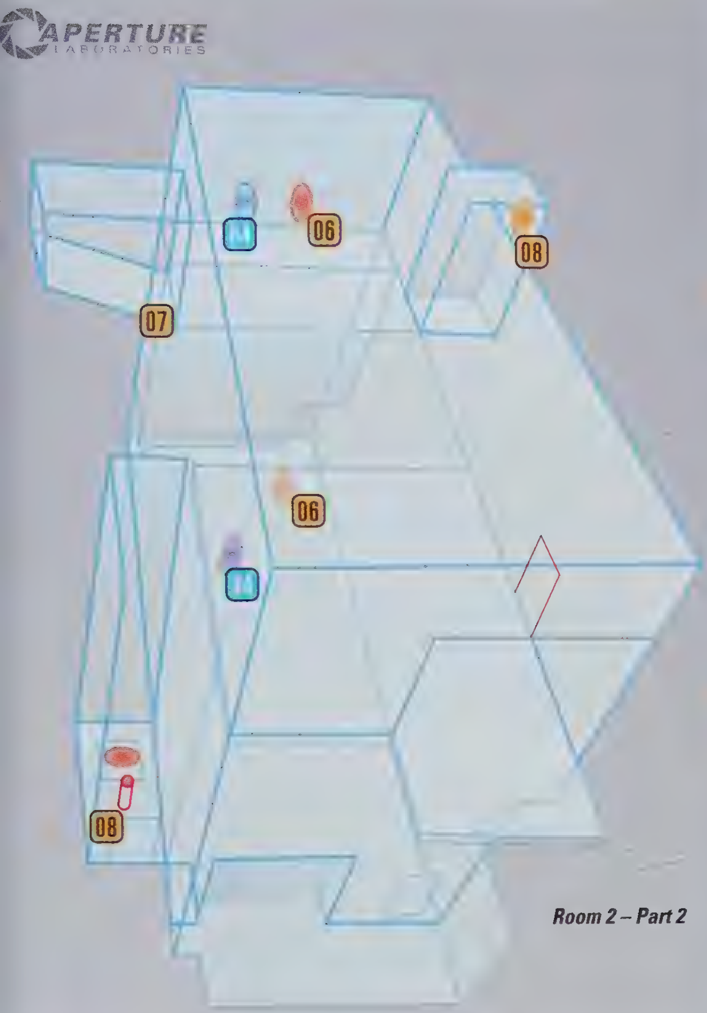
09 Take the cube and go through Blue's portals. The next few tasks must be done quickly. The area you have portalled down to has a ramp lined with Thermal Beams. The aim of this section is to allow your Propulsion Gelled cube to slowly slide down this ramp, which will concurrently block the Thermal Beams. This will have the effect of sequentially raising a series of platforms you can run across to get to 2 levers, which both players will need to pull simultaneously. Drop the cube at the lip of the ramp leaving it to slowly slide down and then quickly run back through your portal.

10 Now both of you should begin running when Orange arrives so both players get to the levers at roughly the same time. Get to the levers and pull them simultaneously.

11 This will have the effect of covering the central area with Propulsion Gel; the first of two steps required to complete the chamber. The door leading to the left side of the chamber will now have opened. Either one of you can now place portals to get to this area and then both of you should proceed through the Emancipation Grill.



Room 2 – Part 3


APERTURE LABORATORIES
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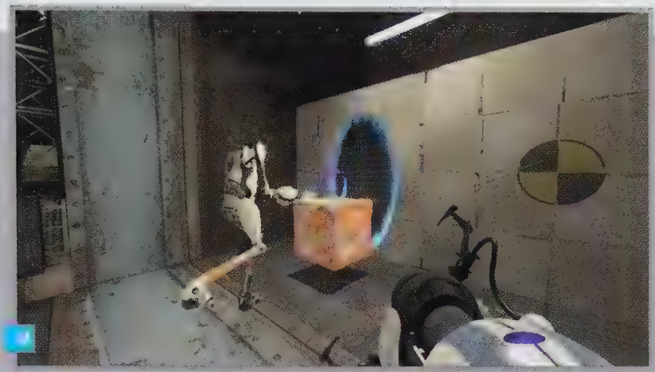
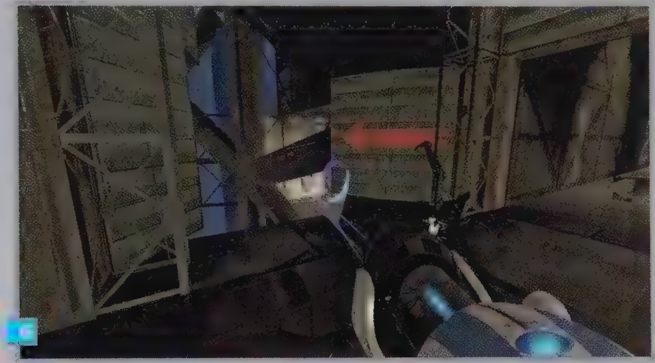
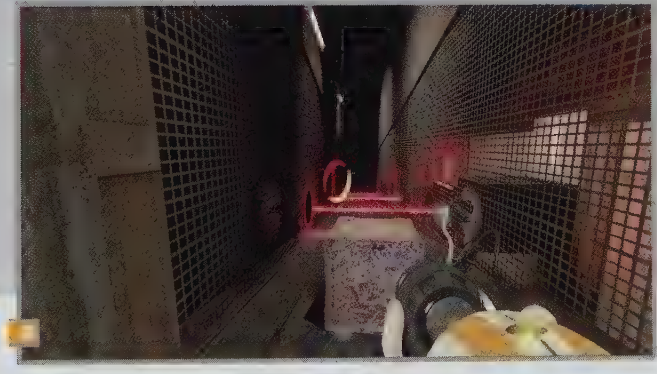
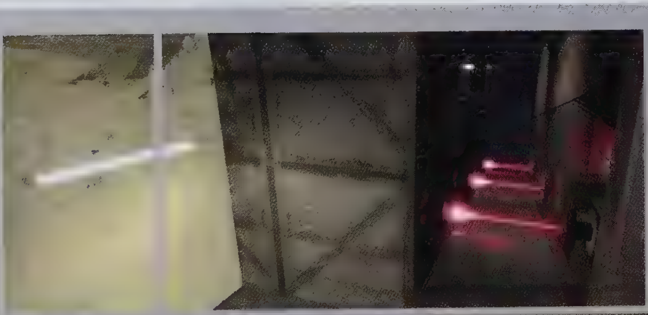
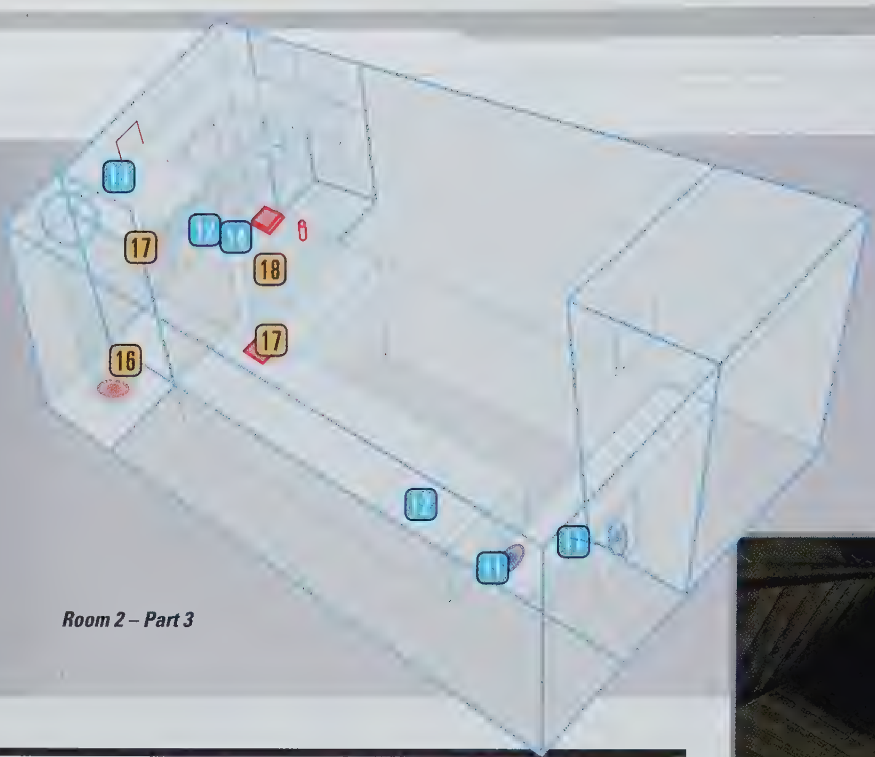
Room 2 – Part 2











Room 2 – Part 3

08 You need to retrieve the Excursion Funnel and place the exit portal on the high portalable surface on the back wall, sending the Excursion Funnel through the Emancipation Grill.

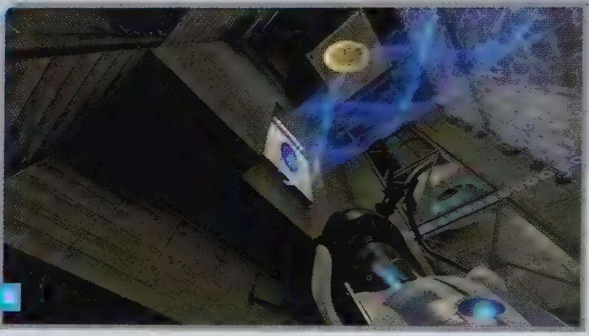
09 Stand on the large button on the floor which will flip over a wall on the far end of the room and create a portalable surface which the Excursion Funnel will hit. While standing here, press the switch next to you and release the Repulsion Gel into the Excursion Funnel.

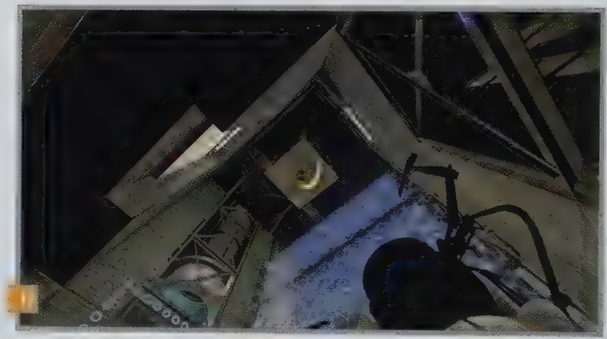
Room 2 continued
Room 2 – Part 3

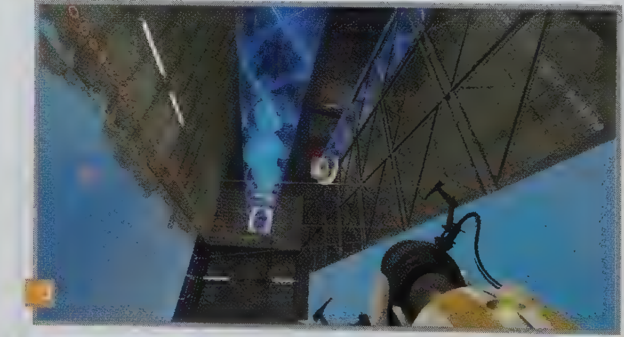
12 You must place a portal under the gel dispenser, and place the exit portal on the portalable surface on the ceiling over the Excursion Funnel.

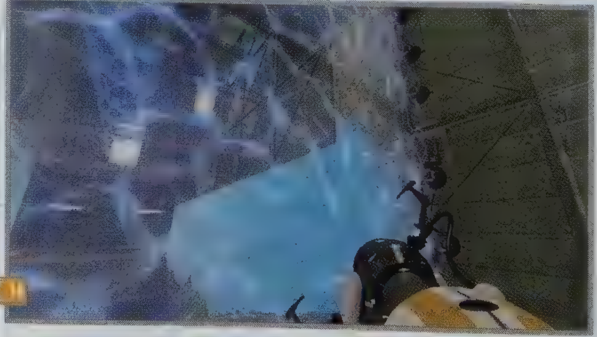
13 As soon as the gel enters the funnel, you need to go through the Emancipation Grill, place a portal on the end of the Excursion Funnel and then place the exit portal on the portalable surface panel in the far top right corner. This must be done quickly, before the gel hits the wall.

14 As the gel passes through along the funnel and through the portals, it will pass over a row of turrets that are on the right. Wait for it to be directly over them, and then step back through the Emancipation Grill to erase your portals, which will drop the gel on the turrets and destroy them.









10 Now both players can safely pass through the Emancipation Grill and bounce along the gelled walls over to the other side.

11 You must jump into this Excursion Funnel. To do this, look at the other end of the turret corridor, and there should be a portable surface on the floor. Place a portal on it, and another on the portable surface panel directly above it.

12 Now both players should head back to the central area, Orange can bounce back over the gap the way you came, and Blue can just drop down from the small room back to the lower area.

13 Now comes the final step of this chamber. Both players should use the Propulsion Gel on the runway to build speed and then use the Repulsion Gelled tip to launch themselves to the other side. Once there, the door will not open. Both players need to face the camera, use a gesture and complete the game.

15 Now both players can safely pass through the Emancipation Grill and bounce along the gelled walls over to the other side.

16 On this side of the room, on the end of the upper path that housed the turrets, the Excursion Funnel generator should once again be visible through the latticed wall; retrieve it with a portal.

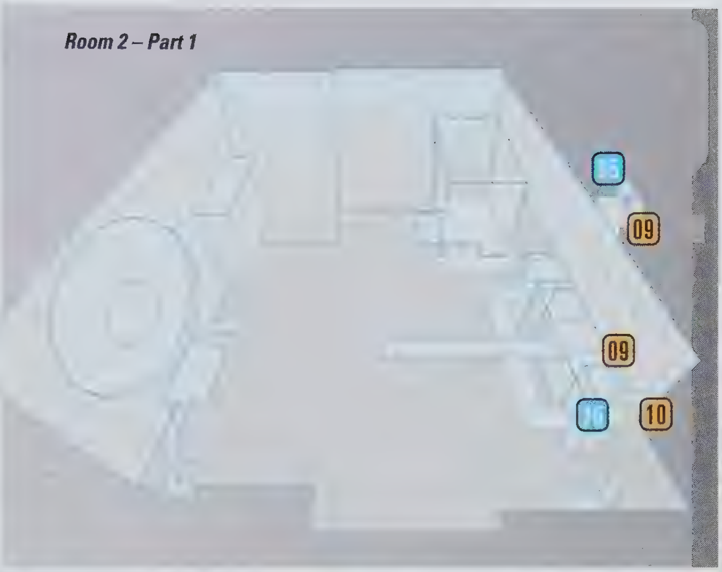
17 Next, stand on the button next to you, which will cause a portable surface to appear above you. Place your exit portal here to create an Excursion Funnel.

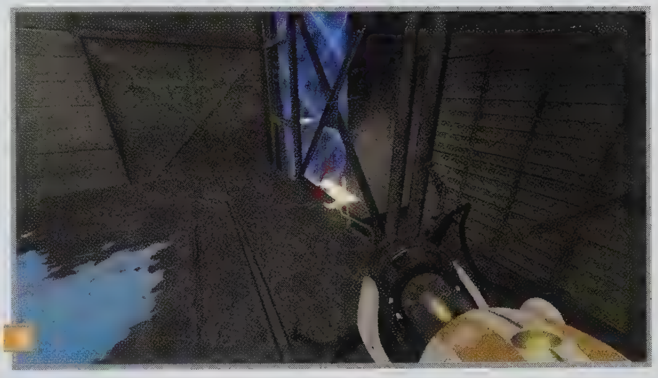
18 Now use the gel to do a high jump into the one on the ground. You will be flung out, bounce on the gel again and into the Excursion Funnel.

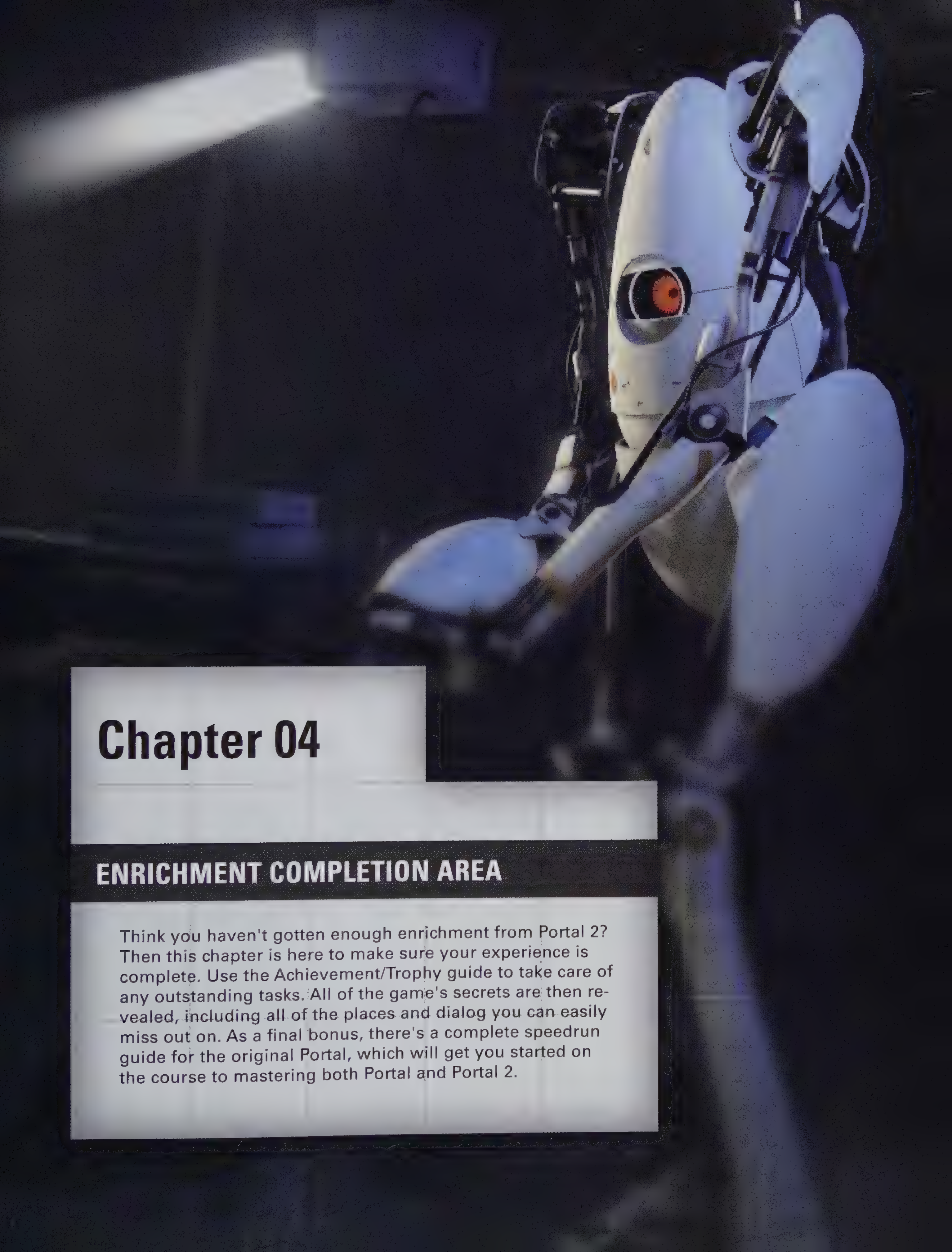
19 Once in the funnel, you will be pushed along to a ledge that leads to a small room. This room has a switch in it, press it. This will place some Repulsion Gel at the end of the central walkway in the main area, completing the second step needed to finish this chamber.

20 Now both players should head back to the central area, Orange can bounce back over the gap the way you came, and Blue can just drop down from the small room back to the lower area.

21 Now comes the final step of this chamber. Both players should use the Propulsion Gel on the runway to build speed and then use the Repulsion Gelled tip to launch themselves to the other side. Once there, the door will not open. Both players need to face the camera, use a gesture and complete the game.







Chapter 04

ENRICHMENT COMPLETION AREA

Think you haven't gotten enough enrichment from Portal 2? Then this chapter is here to make sure your experience is complete. Use the Achievement/Trophy guide to take care of any outstanding tasks. All of the game's secrets are then revealed, including all of the places and dialog you can easily miss out on. As a final bonus, there's a complete speedrun guide for the original Portal, which will get you started on the course to mastering both Portal and Portal 2.

ACHIEVEMENT & TROPHY GUIDE

There are a total of 50 Achievements/Trophies that you can unlock in Portal 2, and while some will be automatically unlocked as you progress through both of the campaigns, others require a great deal more skill and observation.

Single Player Progression Achievements/Trophies

🟨 Gold ⬜ Silver 🟫 Bronze

The following Achievements & Trophies are all progression based, and are unlocked by simply playing through the single player portion of Portal 2. You can not miss any of these Achievements/Trophies and they will unlock automatically once you complete the required area. If you need additional help, please consult the A Return to Science section of this guide.

Wake Up Call

Survive the manual override

5 Gamerscore 🟫

Unlocked as you step out of the hotel room after the games opening sequence.

You Monster

Reunite with GLaDOS

10 Gamerscore 🟫

Unlocked as GLaDOS drops you into the incinerator.

Undiscouraged

Complete the first Thermal Discouragement Beam test

10 Gamerscore 🟫

Unlocked when you complete GLaDOS Test Chamber 01 at the start of Chapter 02

Bridge Over Troubling Water

Complete the first Hard Light Bridge test

10 Gamerscore 🟫

Unlocked when you complete GLaDOS Test Chamber 11 during Chapter 03

SaBOTour

Make a break for it

15 Gamerscore 🟫

Unlocked after you cross the Light Bridge while you are escaping GLaDOS Test Chamber 21 in Chapter 04

Stalemate Associate

Press the button!

15 Gamerscore 🟫

Unlocked after you resolve the stalemate, despite not being a trained stalemate associate, and Wheatley is transferred to the body of GLaDOS near the end of Chapter 05

Vertically Unchallenged

Complete the first Repulsion Gel test

15 Gamerscore 🟫

Unlocked after you complete Pump Station Alpha: Enrichment Sphere 01 during Chapter 06

Tater Tote

Carry Science Forward

15 Gamerscore 🟫

Unlocked after you pick up the potato battery GLaDOS and mount her to your Portal Device near the end of Chapter 06

Stranger than Friction

Complete the first Propulsion Gel test

15 Gamerscore 🟫

Unlocked after you complete Pump Station Beta: Enrichment Sphere 01 at the start of Chapter 07

White Out

Complete the first Conversion Gel test

15 Gamerscore 🟫

Unlocked after you complete Pump Station Gamma: Enrichment Sphere 01 during Chapter 07

Dual Pit Experiment

Do the same test twice

20 Gamerscore 🟫

Unlocked after you complete the second of Wheatley's Experimental Test Chambers for the second time at the start of Chapter 08

Tunnel of Funnel

Complete the first Excursion Funnel test

15 Gamerscore 🟫

Unlocked after you complete Wheatley Test Chamber 01 during Chapter 08

The Part Where He Kills You

This is that part

20 Gamerscore 🟫

Unlocked as soon as you land on the platform at the start of Chapter 09

Lunacy

That just happened

75 Gamerscore 🟨

Unlocked at the end of Chapter 09 when you complete the game

Multiplayer Progression Achievements/Trophies

All of these Achievements & Trophies can be unlocked by simply progressing through the co-op campaign normally and completing each testing course as you come to it. You will need to complete every test on a course before unlocking the Achievement/Trophy, so you will not be able to join another person midway through a course, complete the last few tests, and still get it. Similarly, it is possible to do the tests out of order (if you are joining different people's co-op games and they are at different stages) and you will still unlock the Achievement/Trophy as soon as you complete the final test you need on course. For more information on how to complete all of the tests found within each course, please refer to the Cooperative Testing Initiative chapter in this guide.

High Five
Celebrate your calibration success
5 Gamerscore
–

Confidence Building
Complete all test chambers in the Mass and Velocity Course
10 Gamerscore
–

Obstacle Building
Complete all test chambers in the Excursion Funnel Course
15 Gamerscore
–

Team Building
Complete all test chambers in the Team Building Course
10 Gamerscore
–

Bridge Building
Complete all test chambers in the Light Bridges Course
15 Gamerscore
–

You Saved Science
Complete all test chambers in all Courses of co-op
75 Gamerscore
–

Exploration Based Achievements/Trophies

This series of Achievements/Trophies revolve around you heading off the beaten path somewhat and taking the time to fully explore all of the different areas found within both of the campaigns. Sometimes they will involve you simply following the ill-advised instructions of your testing supervisors, and other times you will need to find creative ways to defy them, but they will always lead to something interesting.

Preservation of Mass
Break the rules in GLaDOS Test Chamber 07
20 Gamerscore
Single Player Campaign

Portrait of a Lady
Find a hidden portrait
10 Gamerscore
Single Player Campaign

Ship Overboard
Discover the missing experiment
10 Gamerscore
Single Player Campaign

Good Listener
Take GLaDOS' escape advice
5 Gamerscore
Single Player Campaign

Door Prize
Examine all of the vitrified test chamber doors
20 Gamerscore
Single Player Campaign

Party of Three
Find the hidden Companion Cube
25 Gamerscore
Co-Op Campaign

Preservation of Mass

07_116

All Test Chambers will usually have a Material Emancipation Grill behind the door leading to the elevator to stop test subjects smuggling test elements out of one chamber and into another, all except GLaDOS Test Chamber 07 that is. As you approach the exit door of this chamber, GLaDOS will inform you of the malfunctioning Grill and give you a warning not to take anything through; to unlock this Achievement/Trophy, however, that is exactly what you must do. Continue along the corridor towards the elevator after passing through the exit until you see a portalable section on the wall, and then place a blue portal onto it. Once that portal is in place, return to the area with the button just in front of the exit and pick up the Companion Cube. Drop down to the bottom of the Test Chamber, and then place an orange portal onto the floor and pass through it while holding the cube and carry it down towards the elevator to unlock the Achievement/Trophy.

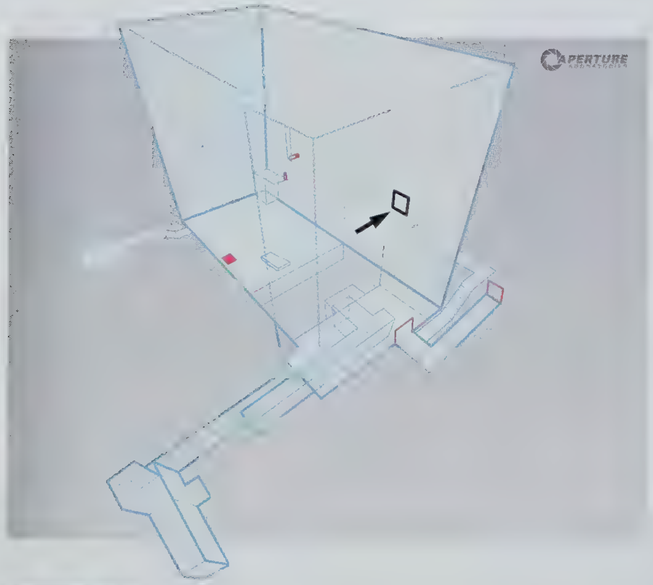
Good Listener

07_117

During the final stages of your escape with Wheatley near the end of Chapter 04, GLaDOS will open up a wall to her last Test Chamber and invite you to solve the test. When you see the Hard Light Bridge extend across the floor, instead of going right as usual and escaping with Wheatley, go left across the bridge and into the Test Chamber that GLaDOS prepared [→☐ 01]. As soon as you have crossed the bridge and are in the chamber the Achievement/Trophy will unlock, but unfortunately, the wall will re-construct itself behind you and the room will start to fill with deadly neurotoxin.

You can try to escape through the open door into the lush foliage on the other side, but as soon as you get close to it, it will seal shut. After a short while you will fall victim to the neurotoxin and collapse on the floor, which is perfectly normal since there is actually no way out of this chamber. Once you have died, you will simply restart at the last Auto Save (which was very close by) and can carry on as normal.

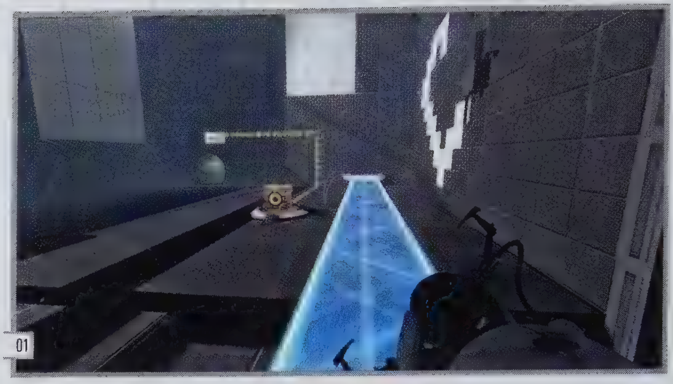
Portrait of a Lady



07_118

After completing the first part of Pump Station Beta: Enrichment Sphere 01 you will come across a short catwalk that leads to the next part of the test; just before you come to the Emancipation Grill at the end of it, stop and place a blue portal on the wall to the right. If you now look through the grating on the left wall you will be able to see another portalable wall on the other side, place an orange portal onto this wall and then step through the blue portal.

Going through the portals will lead you to an area with an office on the right and inside this office there is an old portrait. To unlock this Achievement/Trophy simply go into the office and stand in front of the portrait and look at it for a short while until GLaDOS makes a comment about how familiar the two people look...


01

Door Prize

07_119

07_120

There are six vitrified doors in total that you need to examine in order to unlock this Achievement/Trophy, and they are found in groups of three at two different locations in the single player campaign. To examine a vitrified door you will need to walk up to the small speaker to the side of the door and press the Use Button to activate it. Doing this will cause a prerecorded message from Cave Johnson to play, and the Achievement/Trophy will unlock once all six messages have been played. The game keeps track of your progress on examining the doors, so if you do not get them all in one play through you can easily go back and examine any that you happened to miss.

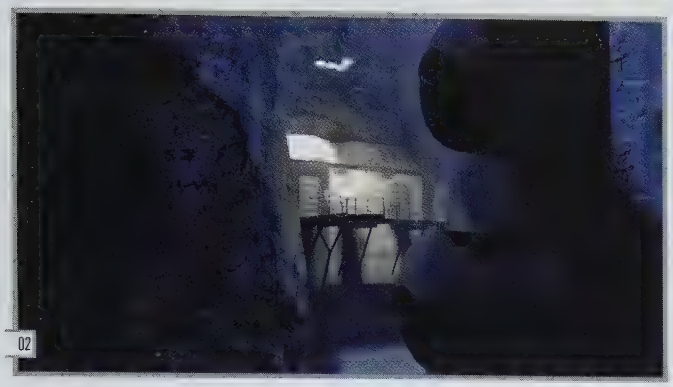
The first group of doors is located in the Old Facility Foyer during Chapter 06, and you can reach it once you get to the top of the elevator tower. If you look across to the area where you would normally place the portal onto the angled surface fort he fling, you will notice that on the catwalks just below it are a group of three doors, and these are the vitrified doors you are looking for [→☐ 02]. Place a blue portal onto the wall between the doors, and then place an orange portal onto the wall on the side of the elevator tower and step through it. Once you are on the catwalk near the doors you can easily examine the speakers, and then step back through the portal and carry on as usual.

The second group of vitrified doors is found along the Path to Pump Station Beta at the end of Chapter 06, near the area where you reacquire GLaDOS. When you come to the area with the control room containing GLaDOS, set up your portals as usual to reach the high catwalk as if you were going to fling across into the control room. Instead of doing the fling, however, walk left along the catwalk and into the office at the end. In the left corner of this office, behind a group of filing cabinets you can reach a partially obscured door by jumping over some of the office equipment in front of it [→☐ 03]. On the other side of the door there is a short corridor, in which you will find the final three vitrified doors; simply examine the speakers next to them to unlock this Achievement/Trophy.

Ship Overboard

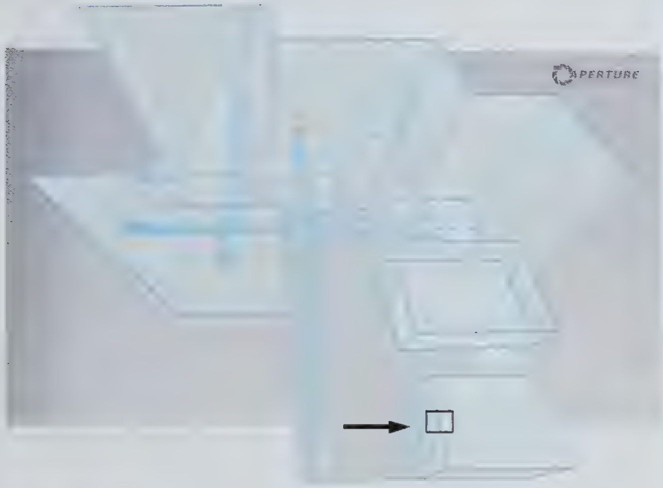
07_121

You can unlock Ship Overboard at the same time you examine the final three vitrified doors for the Door Prize Achievement/Trophy. Walk to the end of the corridor that the last three vitrified doors are in and go through the open door on the right at the end. This doorway will leave you to a docking area for a ship that has long since disappeared and if you walk to the end of the catwalk near the life preserver with "Borealis" written on it, you will unlock this Achievement/Trophy [→☐ 04].


02

03

Party of Three



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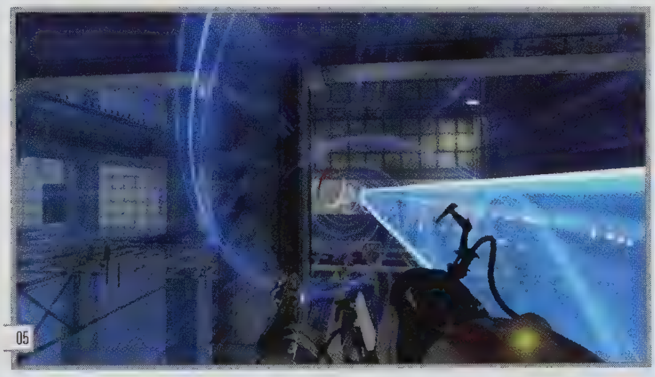

05

07_122

The hidden Companion Cube can be found in the final part of the last Test Chamber during the Excursion Funnel Course. Follow the same path as outlined in the Cooperative Testing Initiative Chapter to get to the area near the office containing the disk. Instead of using the Excursion Funnel to take you into the office, however, place whichever exit portal you are using to extend the funnel onto the wall on the left of the chamber [illegible].

The Excursion Funnel should now be extending off into the distance to the right, with you and your co-op partner traveling along it. As you start to get close to the spike wall at the end of the funnel, a room containing the Companion Cube will open up and you will automatically unlock this Achievement/Trophy. There is no way back from this area, however, so your only choice is ton continue along the funnel and accept your fate once you meet the spike wall, and then continue from the last auto-save.

Single Player Skill-based Achievements/Trophies

This group of Achievements/Trophies require you to complete tests or actions during the Single Player Campaign in ways that are slightly different or more technical than the conventional means. The skills that you will need to unlock many of these can easily be applied to all areas of the game, so becoming familiar with them can go a long way to improving your overall skill levels.

Drop Box

Place a cube onto a button without touching the cube

20 Gamerscore

–

Overclocker

Complete GLaDOS Test Chamber 10 in 70 seconds

30 Gamerscore

–

Schrodinger's Catch

Catch a blue-painted box before it touches the ground

20 Gamerscore

–

Smash TV

Break 11 Test Chamber monitors

75 Gamerscore

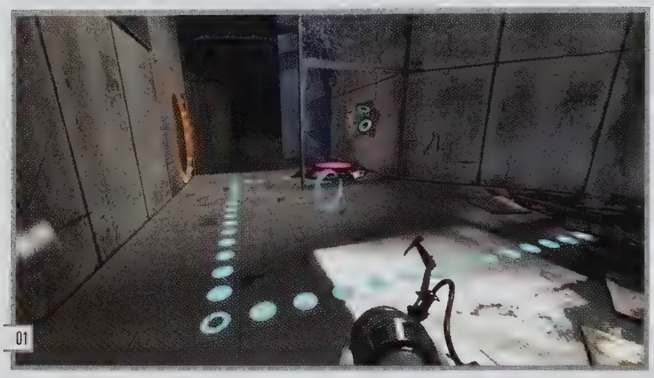
–

Drop Box

07_123

To unlock this Achievement/Trophy you will need to place a cube onto a button so that it activates it, and remains in place for more than a second. Picking up the cube even once at any time in the chamber also means that it can no longer be used for attempting this feat. You can actually attempt to unlock this Achievement/Trophy very early in the game when you come to Emergency Test Chamber 03 during Chapter 01.

If you make your way forward to the pit quickly, you can place a blue portal on the floor where the cube would fall. Now when the dispenser drops the cube, it will fall through the portal with enough momentum so that there is a good chance it will land on the button and activate it [→☐ 01]. Because the rotation of the cube is random, however, it will not always land on the button so it is best to save your game first at the beginning of the chamber before attempting it, so that you can retry if needed.


01

Another good place to try to unlock this Achievement/Trophy is GLaDOS Test Chamber 13, during Chapter 03. If you first clear out all of the turrets, you can then place a portal on the ceiling directly above the button, and then place another portal underneath a cube that you have not touched. Wheatley Test Chamber 05 in Chapter 08 can also be a good place to try to unlock this. When you are setting up the fling at the end to get the cube up to the ledge with the exit, place it as far right on the angled surface as you can. This way when the cube flings out it will stand a good chance of bouncing down straight onto the button. As with the first place, it is worth saving at the start of these chambers so that you can retry quickly if necessary.

Overclocker

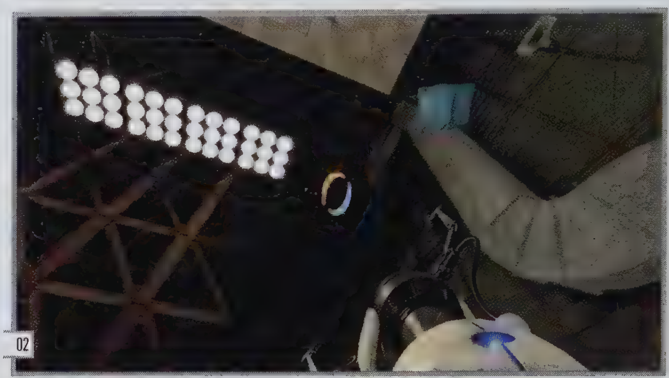
07_124

You will need to complete GLaDOS Test Chamber 10 in less than 70 seconds to unlock this Achievement/Trophy. It is advised that you save as soon as you step off the elevator just in case you happen to misplace a portal and need to retry quickly. The normal solution as outlined in the A Return to Science chapter is sufficient to allow you to complete the chamber in time, as long as you are efficient and do misplace any portals or cubes. It may take you one or two trial runs first to make sure you know the exact placement of the elements, which is why it is recommended to save first. You can save a small amount of time by catching the Redirection Cube mid-flight while it makes its way up to the top floor, rather than waiting for it to land.

Schrodinger's Catch

07_125

The only place you can attempt to unlock this Achievement/Trophy is during Chapter 06 when you come to Pump Station Alpha: Enrichment Sphere 05. The first step in solving this test is to coat a cube inside a glass container with Repulsion Gel so that it bounces around and breaks out. You will then need to try to catch the cube before it touches the ground to unlock this Achievement/Trophy [→☐ 02]. Where the cube goes is totally random, so you will definitely want to save your game first before attempting this one so that you can retry quickly if you miss the cube. It is also worth standing in the middle of the room, rather than to one side, as this will increase your chances of making it to the cube in time.

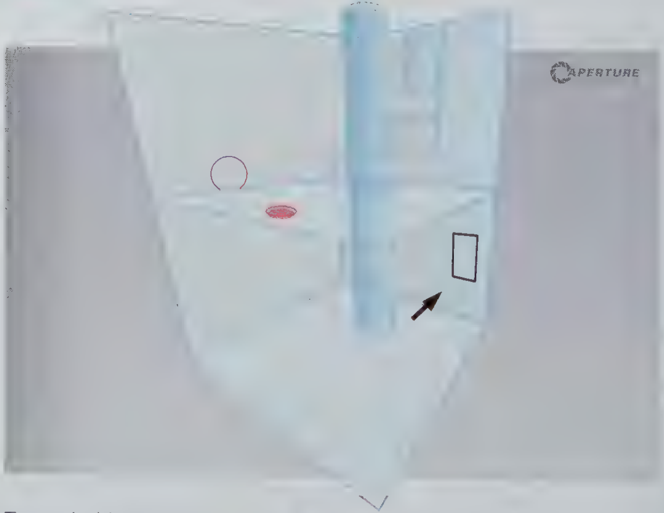

02

Smash TV

07_126

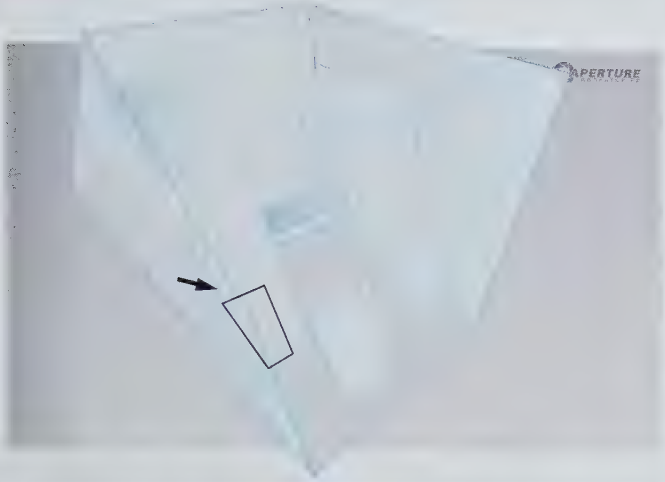
This is one of the more complicated Achievements/Trophies in the game and to unlock it, you will need to break all of the monitors that Wheatley is using to watch over the test chambers during Chapter 08. The only means you have of destroying these monitors is to either fling yourself, or an object into them, use a turret to shoot it, or redirect a Thermal Discouragement Beam into it.

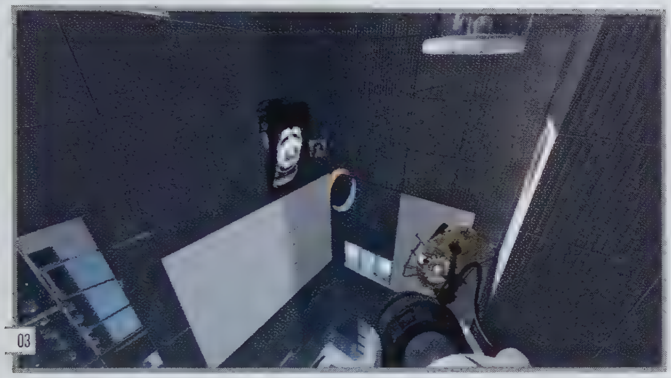
Monitor 1: Wheatley Test Chamber 01



To reach this monitor you will need to place a portal at the top of the wall directly opposite the monitor, and then use a portal on the floor to set up a double fling to gain enough momentum to fly across the chamber and break the monitor.

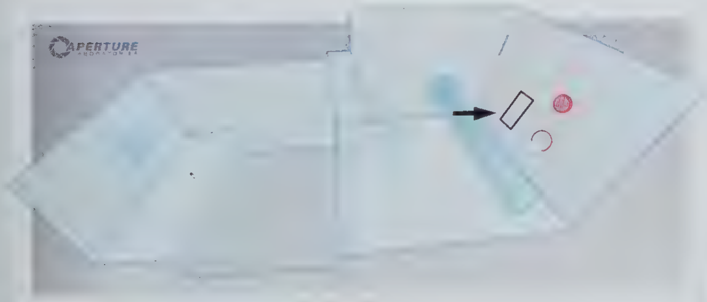
Monitor 2: Wheatley Test Chamber 02




03

Progress through the chamber as normal until the Franken Turret is in the vertical funnel near the ledge with the button. Instead of grabbing it out of the funnel, place your other portal onto the wall directly opposite the monitor. This will cause the funnel to disappear, so that the cube falls through the portal on the floor, and flings out of the one on the wall straight into the monitor [→☐ 03].

Monitor 3: Wheatley Test Chamber 03



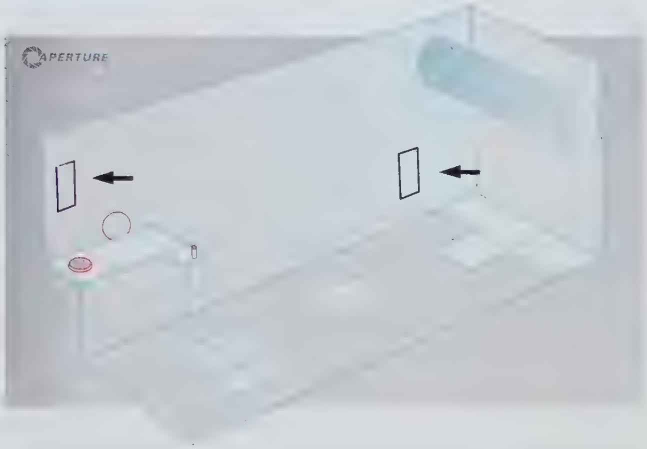
You can break this monitor in the same way as you did the first one. Place a portal up high on the wall opposite it and then use a portal on the floor to create a double fling to cross the chamber and smash into it.

Monitor 4: Wheatley Test Chamber 04

To break this monitor you will need to use the turret that is in the chamber, so resist the temptation to knock it over as usual with the funnel. Run around the glass wall and duck into the small alcove quickly on the other side and wait there until the turret stops targeting you. You will take some damage while you run round the glass but as long as you are quick you can make it into the alcove safely.

Once the turret stops targeting you quickly run around behind it and pick it up. Walk back around into the main part of the room with the turret and then set it down carefully on the floor facing the monitor. The turret will then target the monitor and start shooting it until it is destroyed, at which time you can pick it up and throw it into the chasm and continue as normal. It is worth saving at the start of this chamber before you attempt to destroy the monitor, just in case you accidentally tip over the turret and need to retry.

Monitors 5&6: Wheatley Test Chamber 05

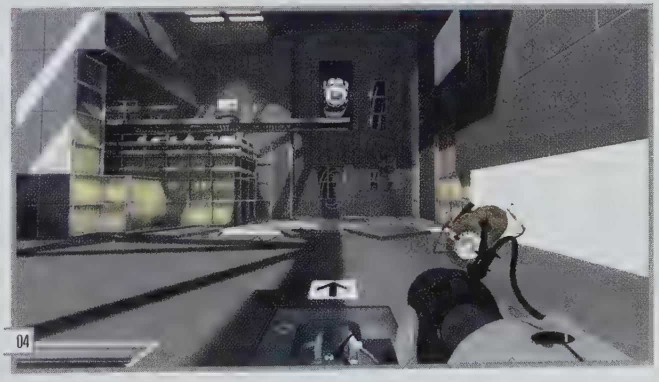


The first monitor in this chamber is on the wall to the right just as you enter, and the second one is above the button near the exit. You will need to break both monitors by flinging a cube into them, so continue through the chamber as normal until you reach the ledge near the exit with the switch. Place a blue portal on the checkered wall that the funnel is hitting, and then place an orange portal on the platform in the middle as usual.

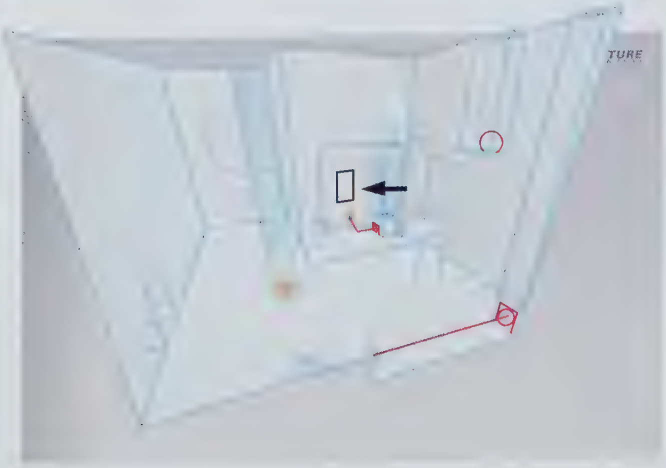
Press the switch to launch a cube into the funnel, and then once it is near the ceiling, reposition the blue portal roughly two wall panels below the checkered area it was on. It can be difficult to line up the shot on this first monitor since you do not have a good view on it so you may need to reposition the blue portal slightly and try again if you miss. To Destroy the second monitor simply use the funnel to get the cube up to the ceiling again, and then reposition the portal grabbing the funnel onto the far right of the angled surface opposite the monitor.

Monitor 7: Wheatley Test Chamber 06

This is a simple one to destroy and all you have to do is step onto the Aerial Faith Plate as soon as you walk into the chamber so that it catapults you straight into the monitor [→☐ 04].


04

Monitor 8: Wheatley Test Chamber 11



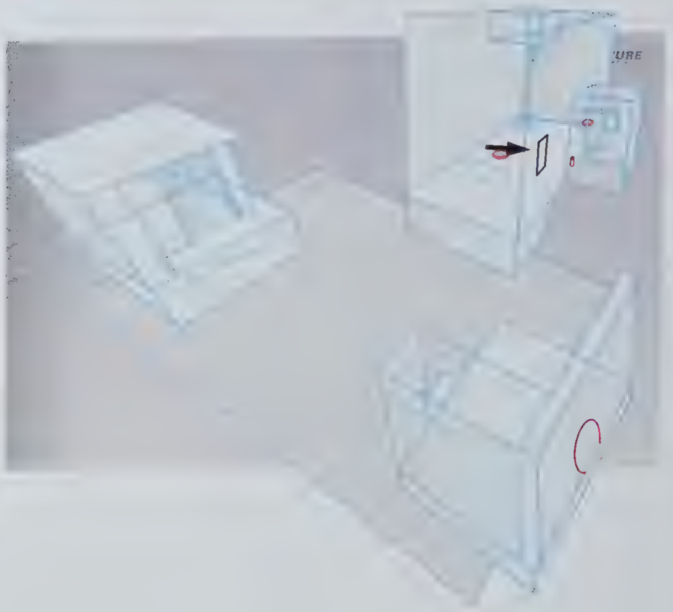
To destroy this monitor you will need to use the Thermal Discouragement Beam, so go through the chamber as you normally would until you get the Redirection Cube. Place a blue portal onto the wall in the pit and direct the beam into as usual, but when you exit the pit, instead of placing the orange portal onto the wall opposite the receptacle, place it on the wall opposite the monitor. Now you will need to jump back down into the pit and pick up the Redirection Cube so that you can angle the beam to hit the monitor and destroy it.

Monitor 9: Wheatley Test Chamber 12

You will need to make use of the Thermal Discouragement Beam again to break the monitor in this chamber. Follow the normal steps for completing this chamber until you are about to redirect the beam into the receptacle to open the exit, but instead, redirect it into the monitor to destroy it.

To break this monitor you will need to use a double fling again. Place a portal high up on the wall directly above the entrance (which is also directly opposite the monitor), and then drop through a portal on the floor to start the double fling and smash the monitor.

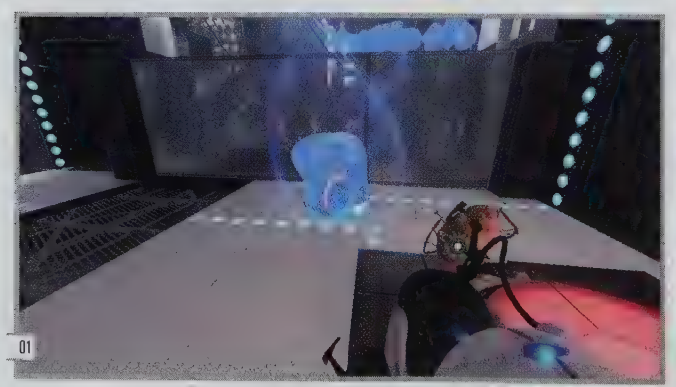
Monitor 10: Wheatley Test Chamber 15



Monitor 11: Wheatley Test Chamber 16

To smash the final monitor you will need the aid of one of the Turrets, which means you will need to be very careful with the Repulsion Gel and it is worth saving your game in advance. Go through the chamber as normal until you have the Repulsion Gel in the funnel and it is heading towards the Turrets, but this time, try to drop the gel so that it only destroy two Turrets [→☐ 01]. The timing on this can be tricky, which is why it is worthwhile having the save at the start of the chamber, should you need to retry.

Once you only have one turret left, place your exit portal onto one of the sections of floor closest to the entrance so that it lifts you off the ground, and then switch your first portal onto the wall overlooking the turret position [→☐ 02]. If done correctly you should drop down and fling out of the portal on the wall and land near the turret so that you can pick it up quickly. After the turret is in your possession, simply walk over to the main part of the chamber with it and set it on the ground so that it can destroy the monitor, and unlock the Achievement/Trophy for you.



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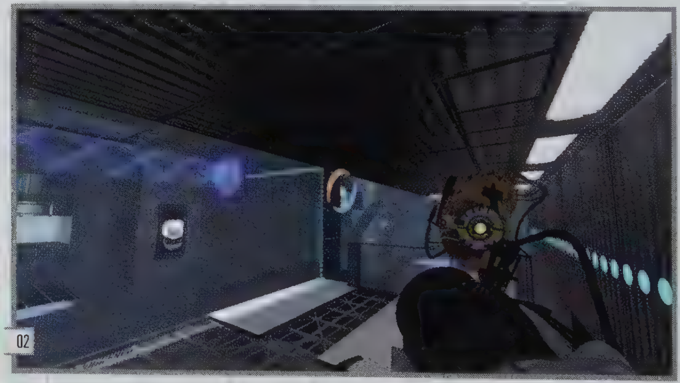


02

Co-Op Skill Based Achievements/Trophies

Like the Single Player Skill Achievements/Trophies, the Co-Op ones are some of the more difficult ones to unlock. The emphasis is all on efficiency, be it either through the amount of time taken to complete chambers, the number of portals you use, or how well you can stay alive.

Air Show

Perform 2 aerial gestures before touching the ground

20 Gamerscore ☐

–

Four Ring Circus

Enter 4 different portals without touching the ground

15 Gamerscore ☐

–

Iron Grip

Never lose a cube in Chamber 6 of the Mass and Velocity Course

20 Gamerscore ☐

–

Portal Conservation Society

Complete Chamber 3 in the Hard Light Bridge Course using only 5 total portals

20 Gamerscore ☐

–

Still Alive

Complete Course 4 with neither you nor your partner dying

15 Gamerscore ☐

–

Triple Crown

Solve 3 co-op Chambers in the Mass and Velocity Course in under 60 seconds each

15 Gamerscore ☐

–

Air Show

07_127

The easiest place to unlock this Achievement/Trophy is while you are inside one of the many Excursion Funnels found during Course 04. At any time you are inside a funnel simply perform two Gestures and you will have completed the Air Show. If you want to unlock this Achievement/Trophy as early as possible, however, you can actually attempt it anytime there is portalable section of floor big enough for two portals.

Get your co-op partner to set up both portals on the floor so that you drop into one with no momentum, which will allow you to keep dropping down into each of the portals indefinitely [→☐ 03]. You have all the time you need then to perform the two air Gestures, and then you can use the same set up to allow your co-op partner to perform their own Air Show.

Four Ring Circus

07_128

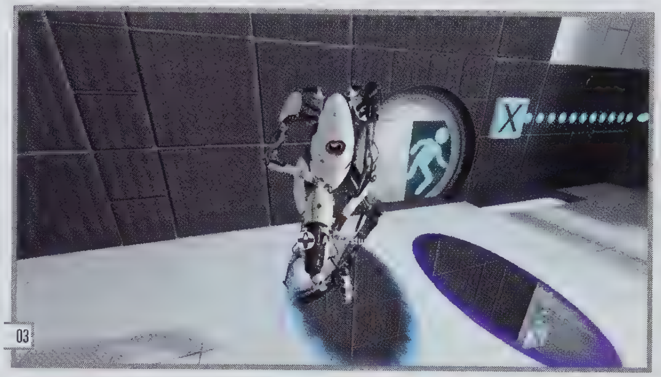
The trick to unlocking this is that you must enter four different portals. The easiest way to unlock this Achievement/Trophy is to use a similar technique to the one you can use when attempting the Air Show. Instead of having your co-op partner set both of their portals on the floor, use your own two and start falling between them. Once you have entered both portals at least once, have your co-op partner place one of their portals somewhere else on the floor, and then overwrite one of your portals so that you fall into it [→☐ 04]. As soon as you have entered both of their portals you will complete the Four Ring Circus.

Iron Grip

07_129

The description for this Achievement/Trophy is slightly misleading in that there are two sections to this chamber, and in the first section you can lose as many Cubes as you like. The only cube you are not allowed to lose is in the second section where you have to time the release so that your partner can catch it. This means that you have to catch the first cube that you release or you will need to go back to the Hub and reload the chamber to try again. To time the cube release correctly, press the switch to release the cube slightly after your partner steps onto the Faith Plate [→☐ 05]. For a visual cue, you will want to press the switch just as they are getting close to the window near the top of the chamber.

03



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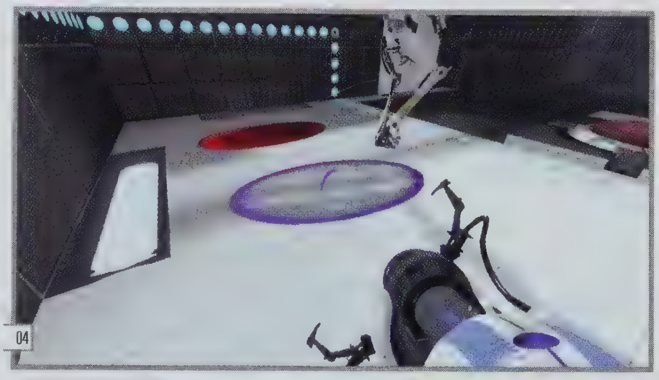

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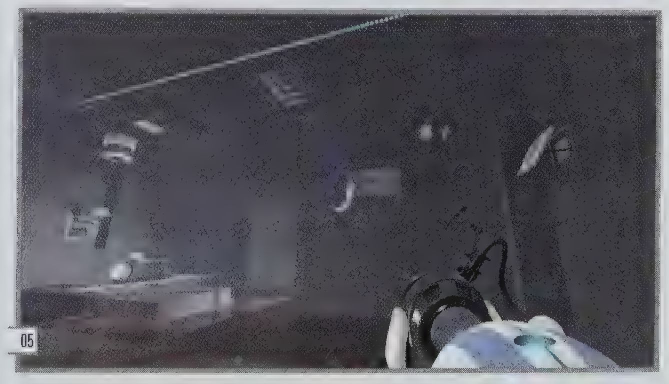
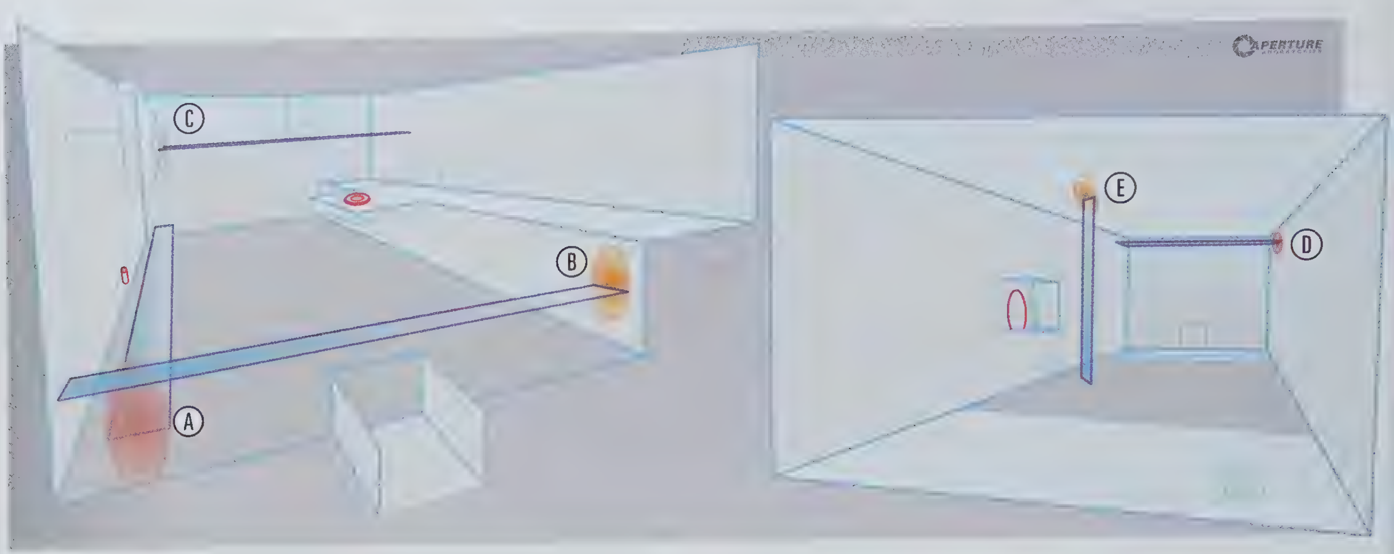


Portal Conservation Society



Unlocking this Achievement/Trophy is one of the more difficult tasks in the game because it involves a couple of very tricky maneuvers that if done wrong, will cause you to fall into a moat. If at any time you misplace a portal, you will need to exit back out to the Hub and try again. In the first part of the chamber, get as close to the front of the ledge near the start as possible, and then peek out far enough to the left to see the surface that the Light Bridge is hitting at Position A.

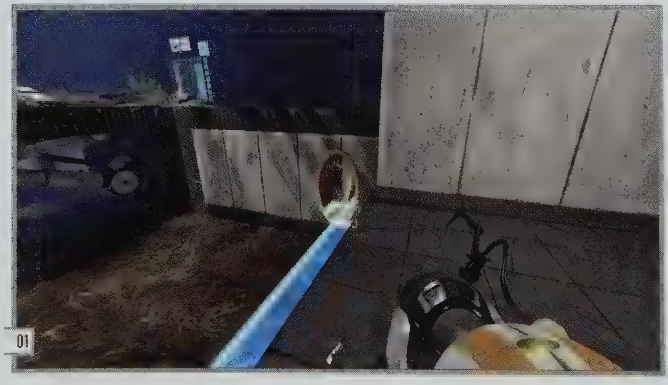
07_130

Carefully place a portal at Position A, and then place another portal at Position B on the low wall to the right to extend the Light Bridge across the front of the moat [→▢ 01]. Once the Light Bridge is in place, have your co-op partner jump down and run to the area where the Light Bridges intersect, while you stand on the Light Bridge near the front of the moat.

The next part is the most difficult bit of this Achievement/Trophy and requires some very accurate and fast portal firing. You need to reposition your portal extending the bridge from Position B, up onto the far protruding wall panel at Position C. Doing this will of course remove the Light Bridge that you are currently standing on, so the only way to do it is to reposition the portal while jumping, and then land on the original section of the Light Bridge. Start by positioning yourself just over a jumps distance away from the section of Light Bridge you want to land on, facing towards the panel you need to place the portal onto.

Start sidestepping to build up a bit of momentum, and then quickly jump and fire the portal onto the wall panel while it is still in view. The distance you are away from the original part of the Light Bridge is the most important factor because you need to be close enough to actually land on it after the jump, but far enough out so that you can actually get a portal up to Position C. It is worth having one or two practice jumps first until you get the exact positioning down before trying for real. Once you have successfully repositioned the portal, you should be able to run across the Light Bridge now extending from Position C. Have your partner press the switch to drop the Edgeless Safety Cube, and then continue to the next room with it.

In this next room, place a portal onto the wall that the Light Bridge is hitting at Position D, and then stand in the corner near the Faith Plate and place your other portal on the second panel from the right on the ceiling at Position E. Standing in the corner to place the portal on the ceiling should mean that it is at a slight angle, which will cause the Light Bridge extending out from it to be tilted slightly towards the exit [→▢ 02]. When you now step onto the Faith Plate, start holding right immediately, so that when you hit the Light Bridge you bounce off it and onto the ledge near the exit. Have your partner do the exact same thing to get them up to the ledge and then complete the chamber as normal to become a proud member of the Portal Conservation Society.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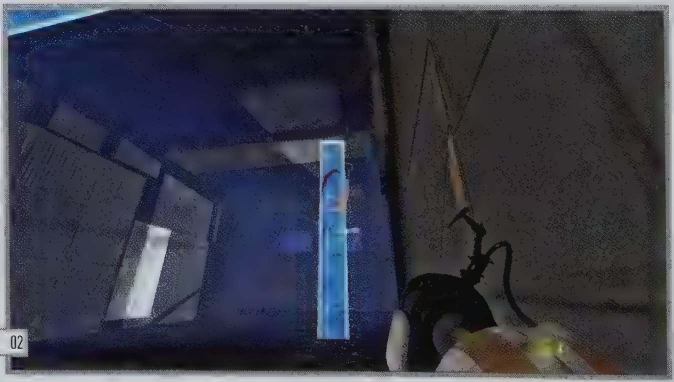

02

Still Alive

This Achievement/Trophy is self explanatory, but that does not mean it will be easy to unlock. You will need to complete every single chamber within Course 04 from start to finish without you or your co-op partner ever dying. There is no time limit so it is best to take your time and be sure of every action before you take it, while avoiding unnecessary risks. Simply be patient and follow the steps outlined in the Cooperative Testing Initiative Chapter and unlocking this should be straightforward. If at anytime you do happen to die, however, you will need to exit back out to the Hub and start from the beginning again.

Triple Crown

Most of the chambers within the Mass and Velocity Course can be done in less than 60 seconds with the solutions outlined in the Cooperative Testing Initiative Chapter, as long as you are being efficient with portal placement. You can choose to do any three chambers from this course, so simply pick the ones you are most comfortable with and become familiar enough with them so that no time is wasted.

Single Player Miscellaneous Achievement/Trophies

These Achievements/Trophies mainly consist of those that involve small acts of rebellion against the testing procedure, or trying to interrupt its normal operation. None of them are especially hard to unlock once you know what you are looking for, but they all lead to interesting or fun conclusions.

Final Transmission
Find the hidden signal in one of Rat Man's dens
20 Gamerscore
–

Pit Boss
Show that pit who's boss
30 Gamerscore
–

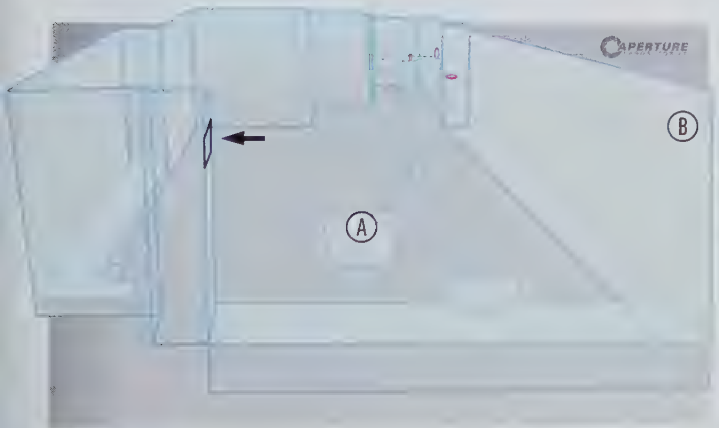
Scanned Alone
Stand in a defective turret detector
5 Gamerscore
–

No Hard Feelings
Save a turret from redemption
10 Gamerscore
–

Pturretdactyl
Use an Aerial Faith Plate to launch a turret
5 Gamerscore
–

You Made Your Point
Refuse to solve the first test in Chapter 8
10 Gamerscore
–

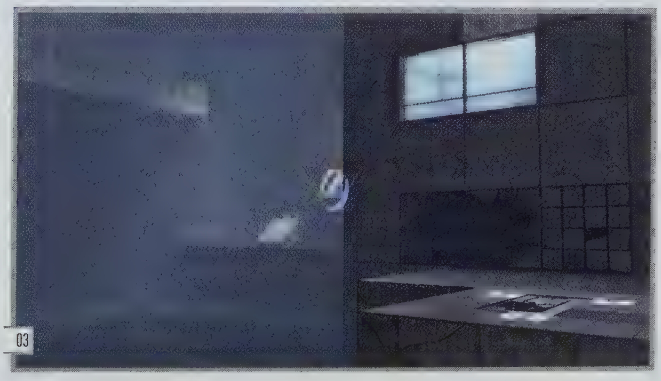
Final Transmission



To unlock this Achievement/Trophy you will need to be in GLaDOS Test Chamber 06 during Chapter 02. Continue through the chamber as normal until you are on the bridge near the exit and press the switch to release the garbage from the dispenser. Amongst the garbage there is a radio and this is the key component to hearing the Final Transmission. Try to grab the radio as it flies past you on the bridge, but if you miss it, it will normally end up on the ledge below so you can drop down and get it from there.

07_131

Once you have the radio, use your portals to get back to the beginning of the chamber, and then place one of them on the closer of the two angled surfaces at Position A. Instead of placing your second portal on the other angled surface as normal, place it on the far right of the wall above them at Position B [→☐ 03]. Once the portals are in place, pick up the radio and step onto the Faith Plate so that you pass into the first portal and fling out of the one on the wall into one of Rat Man's dens. Walk deeper into the den, and when you approach the drawings the radio will begin to transmit a strange message and you will unlock the Achievement/Trophy. If only the transmission could be somehow decoded...


03

No Hard Feelings

07_132

As you make your way across the second turret redemption line on your way to the Turret Control Centre near the beginning of Chapter 05, look for a partially active turret amongst the debris. If you pick the turret up you will unlock this Achievement/Trophy straight away. You can even then place it back down on the conveyor belt to be redeemed, but you wouldn't be that cruel would you?

Pit Boss

07_133

At the start of Chapter 09, escape Wheatley's trap as usual using the Conversion Gel, and then start to walk away along the catwalk. After a short while Wheatley will call you back, and if you listen to him and return to the trap he will recommended that you jump into the pit since he is all out of death trap ideas [→□ 01]. Never one to back down, if you jump into the pit as instructed you will unlock this Achievement/Trophy, of course you'll die and have to reload, but it will have been worth it to show that pit who's boss.

Pturretdactyl

07_134

The best place to attempt this Achievement/Trophy is during GLaDOS Test Chamber 15 in Chapter 03. The main thing to remember with this Achievement/Trophy is that the turret has to be still functional, which means you are not able to use any that have been knocked over. At the start of the chamber, set up the portals as usual so that you can block the first turret and come out behind it. Instead of knocking the turret over, however, reposition the portal onto the column in the main room first to block the other Turrets, and then pick up the one nearby and walk down to the Aerial Faith Plate in the corner with it. Drop the turret onto the Faith Plate and you will see the Pturretdactyl soar and unlock the Achievement/Trophy.

Scanned Alone

07_135

Once you reach the Turret Control centre in Chapter 05, instead of replacing the master turret with the crap turret, step into it on your own first. Wait in the scanner until the machine has attempted to scan you fully and you will unlock the Achievement/Trophy straight away.

You Made Your Point

07_136

When you come to Wheatley's first attempt at a real test (his second experimental one) near the start of Chapter 08, he will want you to press a switch to release a cube. All you need to do is not press the switch once you enter the chamber, and after a set amount of time has passed without you solving the test, the Achievement/Trophy will unlock, much to Wheatley's dismay.

Co-Op Miscellaneous Achievement/Trophies

These Achievements/Trophies follow a similar theme to the single player ones, but with more emphasis on sharing the co-op experience with other people on your friends list.

Asking for Trouble

Taunt GLaDOS in front of a camera in each course

10 Gamerscore

–

Friends List With Benefits

Hug 3 different people on your friends list

50 Gamerscore

–

Professor Portal

After completing co-op, play online with a friend who hasn't played before

50 Gamerscore

–

Can't Touch This

Dance in front of a turret blocked by a Hard Light Bridge

10 Gamerscore

–

Gesticul-8

Perform all 8 gestures of your own volition

15 Gamerscore

–

Rock Portal Scissors

Win 3 games of rock-paper-scissors in a row

10 Gamerscore

–

Empty Gesture

Drop your partner in goo while they are gesturing by removing the bridge under them

25 Gamerscore

–

Narbacular Drop

Place a portal under your parent while they are gesturing

25 Gamerscore

–

Asking for Trouble

You can find GLaDOS' observation cameras near the airlocks and exits of most chambers throughout the co-op portion of the game. To unlock this Achievement/Trophy simply perform any gesture while standing near one of them in each of the five different courses

Can't Touch This

07_137

The easiest place to unlock this Achievement/Trophy is in Test Chamber 06 of the Hard Light Surfaces Course. At the start of this chamber there is already a Hard Light Bridge crossing the hallway, which is blocking a group of Turrets; simply walk up to the Light Bridge, face the Turrets and then select the dance gesture to mock the Turrets [→☐ 02].

Empty Gesture

Although this can be done in any Test Chamber with a Hard Light Bridge, the start of Chamber 01 on Course 03 where you also attempt to join the Portal Conservation Society is one of the easiest places. This chamber has a Light Bridge and a goo moat right at the start, so simply extend the Light Bridge over the moat and get your partner to stand on it. As soon as they start performing a gesture, move the portal supporting the Light Bridge somewhere else so that they fall into the moat [→☐ 03].

Gesticul-8

Since you unlock the different gestures as you progress through the co-op campaign, you will not be able to you unlock the final one during Course 04. You can choose to either perform each one on your own as you get them, or wait until you get the final one and perform all eight in one go. Which ever method you choose, as soon as you have performed them all you will unlock this Achievement/Trophy.

Narbacular Drop

07_138

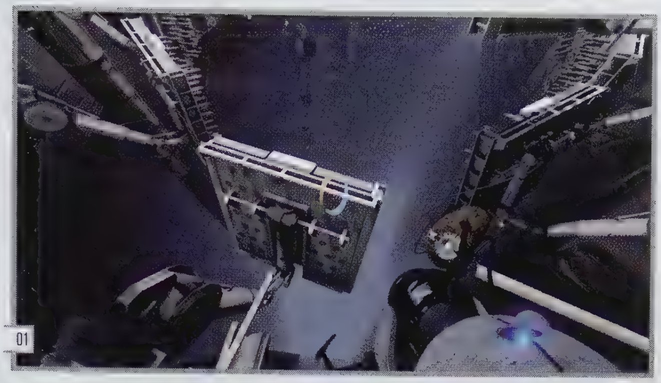
You can attempt this Achievement/Trophy very early in the co-op campaign since it can be done as soon as you have the first gesture and come to a portalable floor. Simply have your partner start a gesture while they are standing on a suitable section of the floor, and then place a portal directly under them. They do not actually have to fall through the portal, it just has to be placed so that most of it is underneath them. [→☐ 04]

Professor Portal

This Achievement/Trophy is designed to spread the love of science by aiding new test subjects through the co-op campaign, after you have already been through it and become a veteran. Make sure before you enlist a new recruit that you have completed every chamber of the co-op campaign, and that they have never started it before. After both of you finish the Calibration Course your generosity will have been noted and you will be granted the honorary title of Professor Portal.

Rock Portal Scissors

You can attempt to unlock this Achievement/Trophy as soon as you have unlocked the rock-paper-scissors gesture, which you get halfway through Course 01. The outcome of each game is totally random, so you will need to just keep playing until you eventually win three times in a row. Remember that to get the Achievement/Trophy you'll need to both initiate and 'win' the gesture three times.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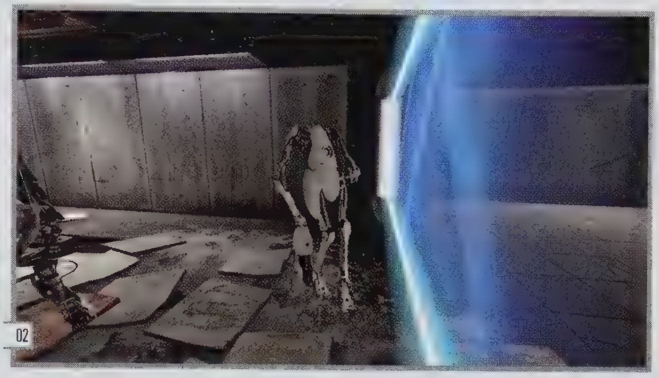
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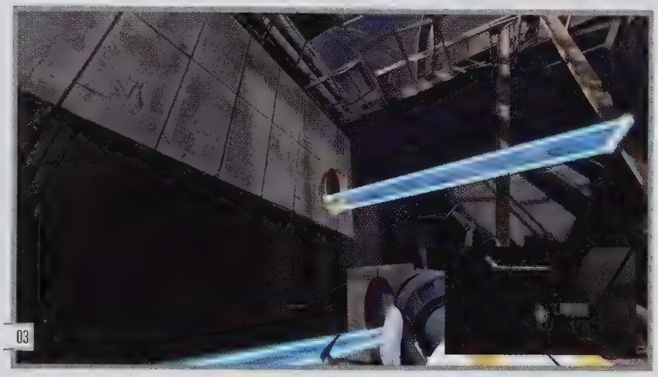
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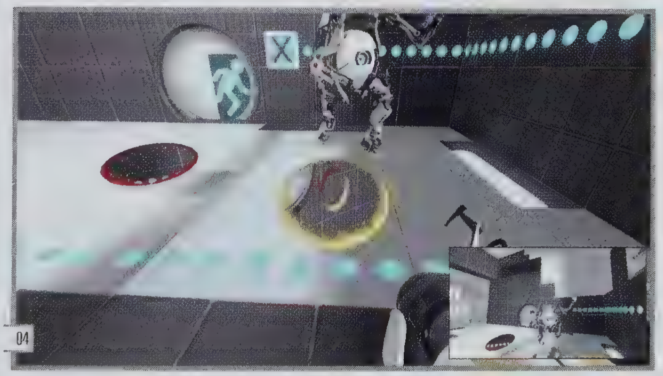

04

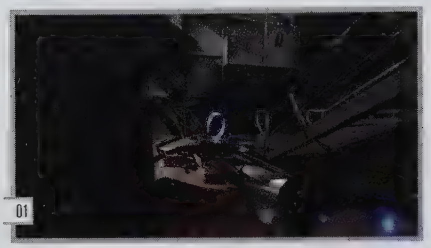
RESTRICTED INFORMATION

Portal 2 has quite a bit to do and see, and within the game are a variety of hidden areas and things for you to discover. The purpose of this chapter is to highlight some of the secrets and extra content you can find in Portal 2. If you don't want anything to be spoiled, then it's a good idea to leave this section of the guide until you've played through the main game at least once.

Rat Man Dens

Doug Rattmann was once an employee of Aperture Science. In Portal 1, GLaDOS forced him to test, and he obviously went insane and managed to escape the test track while he was in Test Chamber 16. By prying away a panel wall, Doug Rattmann was able to slip into the maintenance areas behind the test chambers, and thus hide from GLaDOS.

As Doug hid from GLaDOS, he made little areas known as Rat Man dens in which he could live and sleep. In these dens, you can see his scribblings and drawings on the walls and get a glimpse into the mind of Doug Rattmann. Rat Man is back in Portal 2, and he's been fairly busy.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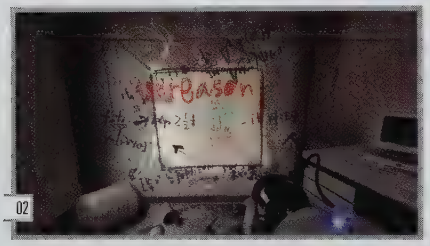

02

Unreason

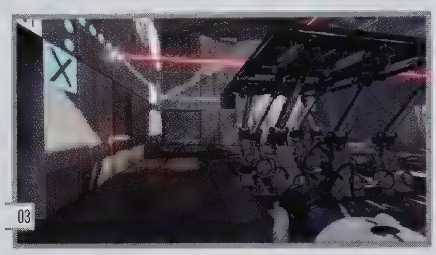
07_139

After completing Chamber 04 of Chapter 1, you'll land on a glass surface, which will break. Follow the ramp it creates, and you will come to some stairs [→☐ 01]. If you go up these stairs, you will find the first Rat Man den. [→☐ 02]

Too many Variables

07_140

In Chamber 03 of Chapter 2, you'll find a hole in the wall opposite the ledge with the Discouragement Redirection Cube [→☐ 03]. Go through that hole, and you will find a couple of murals, many cans of beans, and a radio playing Exile Vilify by the music group The National. Interestingly enough, The National wrote and performed Exile Vilify specifically for Portal 2.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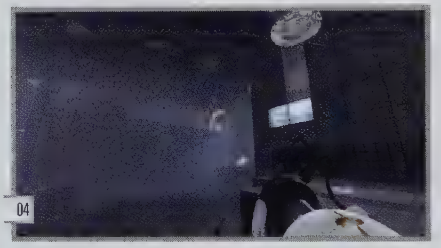

04

Smooth Jazz fails

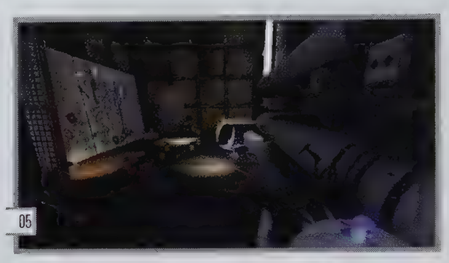
07_141

In Chamber 06 of Chapter 2, place your exit portal on the wall above the second angled surfaces rather than on the second angled surface [→☐ 04]. If you place your entrance portal on the first angled surface as normal, you'll fling yourself into a secret room, containing beans, water, and a comment on smooth jazz [→☐ 05]. This room is involved in getting the "Final Transmission" Achievement / Trophy, so please refer to the Achievement / Trophy section of this guide for a detailed description on unlocking "Final Transmission".

Who are You?

07_142

This den is located in Chamber 12 of Chapter 3. After Wheatley speaks to you and GLaDOS opens the door, use your portals to get up onto the Hard Light Bridge. If you turn around and look at the ceiling, you'll see a panel fall off and expose a portalable surface [→☐ 06]. Make your way up there to find another mural, and some more beans. [→☐ 07]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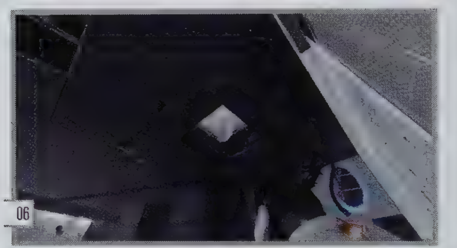
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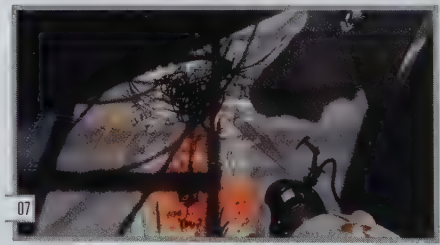
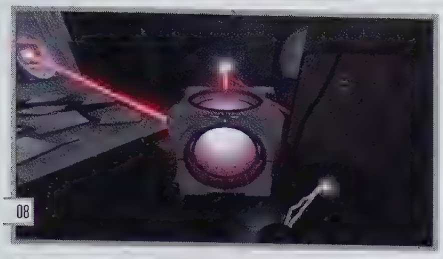

07

Umn Rality

07_143

You'll find this one in Chamber 16 of Chapter 3. You will need to use the Thermal Discouragement Beam to take out the turret in the air duct right next to the entrance. To do this, after taking out the first row of turrets and placing the Weighted Storage Cube on the button, place one portal under the beam, and the other on the wall so that it crosses the entrance.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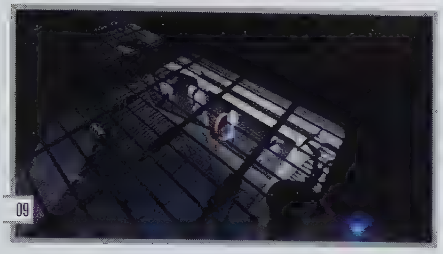
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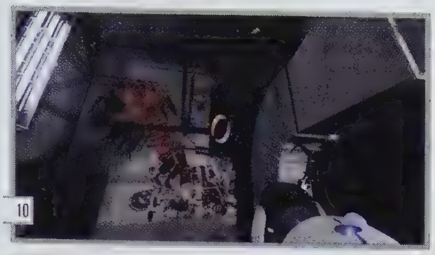
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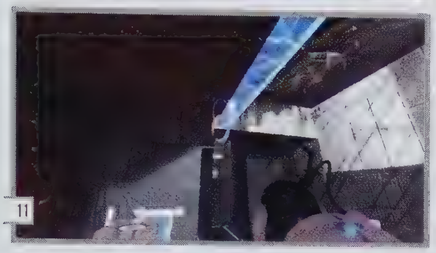
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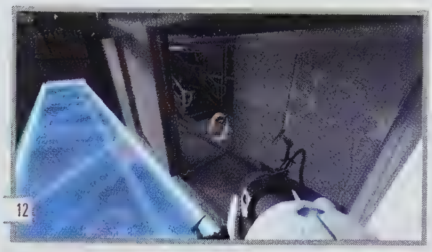
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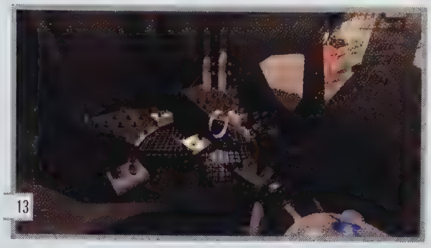
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From there, you can use the Discouragement Redirection Cube to destroy the turret, thus opening the grate [→☐ 08]. As you crouch and walk into the duct, you'll begin to hear singing. If you look below, you'll see that the turrets themselves have launched into a tune [→☐ 09]. Continue to the back of the duct, and you'll find some more beans, water, and a mural of dead scientists. [→☐ 10]

Tenacity

In Chamber 17 of Chapter 3, extend the Hard Light Bridge from the overhang in front of the exit [→☐ 11]. Travel onto the bridge, and to your right you'll see an open panel [→☐ 12]. Go inside and climb the stairs. Inside, you'll find two murals and dozens of mugs. Each mug has something different written on it! [→☐ 13]

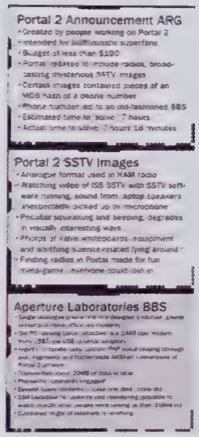
07_144

Auxiliary Data

Audio Transmissions

Rat Man doesn't only draw murals, he has been trying to send out transmissions as well. These can be heard by listening to the developer commentary node in the "Tenacity" room as described above, or by bringing the radio into the "Smooth Jazz Fails" room as described in the "Final Transmission" Achievement / Trophy guide.

These transmissions sound oddly like the gibberish that might be heard from a 56k fax modem, but in fact they are actually SSTV transmissions. SSTV, or Slow-Scan Television, is way of transmitting still images using radio frequencies. The technology was invented in 1957, and is still being used today by amateur radio operators.


Portal 2 Announcement ARG

Portal 2 SSTV Images

Aperture Laboratories BBS

Since these are valid SSTV data transmissions, they can be decoded with the right software. The first task is to extract the audio file, and once you have it, you can run it through a decode program such as "RX-SSTV" which is a free SSTV decoder that can be found on the internet. Detailing the entire procedure for doing the extraction and decode is beyond the scope of this guide, but there is plenty of information on decoding SSTV signals to be found on the Internet.

When decoded, the commentary SSTV transmission will display a slide from a slideshow. This particular slide gives more information about the Portal ARG. The SSTV transmission from the radio in the Smooth Jazz den will display a picture of a Test Chamber and a Weighted Storage Cube.

Portal 2 Announcement: ARG

- *Created by people working on Portal 2*
- *Intended for enthusiastic superfans*
- *Budget of less than $100*
- *Portal updated to include radios broadcasting mysterious SSTV images*
- *Certain images contained pieces of an MD5 hash of a phone number*
- *Phone number led to an old-fashioned BBS*
- *Estimated time to solve: 7 hours*
- *Actual time to solve: 7 hours, 16 minutes*

Portal 2 SSTV Images

- *Analog format used in HAM radio*
- *Watching video of ISS SSTV with SSTV software running, sound from laptop speakers picked up by microphone*
- *Peculiar squeaking and beeping degrades in visually interesting ways*
- *Photos of Valve whiteboards, equipment, and anything science-related lying around*
- *Finding radios in Portal made for fun meta-game everyone could join in*

Aperture Laboratories BBS

- *Single analog phone line in a designer's kitchen (phone systems in Valve office too modern)*
- *Old PC running Unix attached to a 2400 bps modem from 1987 (via USB to serial adapter)*
- *Registry to handle calls; custom PHP script looping through plot fragments and home-made ANSI-art conversions of Portal 2 artwork*
- *Transmitted about 20MB of data in total*
- *Phoneline constantly engaged*
- *Several spare modems in case one died – none did*
- *SSH backdoor for updates and monitoring (possible to watch exactly what people were seeing as they dialed in)*
- *Combined might of internets is terrifying*

Extra Dialog

There is quite a bit of additional dialog in the game that is very easy to miss. Here we will offer some basics pointers on how to hear everything the game has to offer.

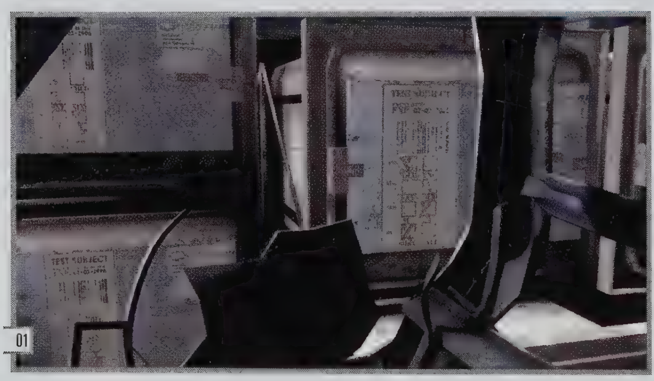
- *Delay as long as possible whenever you are told to do anything by anybody. By delaying the requested action, you'll receive further instructions and extra dialog.*
- *Pick up and hold the turret on the redemption line in Chapter 4.*
- *Pick up and hold a crap turret in Chapter 4.*
- *Stand in the turret scanner yourself in Chapter 4.*
- *Look at all the science projects in Chapter 4.*
- *Glance at the painting of Cave and Carolyn in Chapter 7. See the Achievement / Trophy guide for "Portrait of a Lady".*
- *Don't look at the Paradox poster when GLaDOS asks you to at the end of Chapter 7.*
- *Press all the buttons on the vitrified doors. See the Achievement / Trophy guide for "Door Prize".*
- *Smash all of Wheatley's monitors. See the Achievement / Trophy guide for "Smash TV".*
- *Avoid killing Wheatley in the finale for as long as possible.*
- *Listen to the corrupt cores in the Wheatley fight for as long as possible.*

Science Projects

Have you stopped and looked closely at the science projects from Bring Your Daughter To Work Day? Be sure to look at the names on the projects. The last one, the one with the potato growing up into the ceiling, is by a little girl named "Chell".

Test Subjects in Stasis

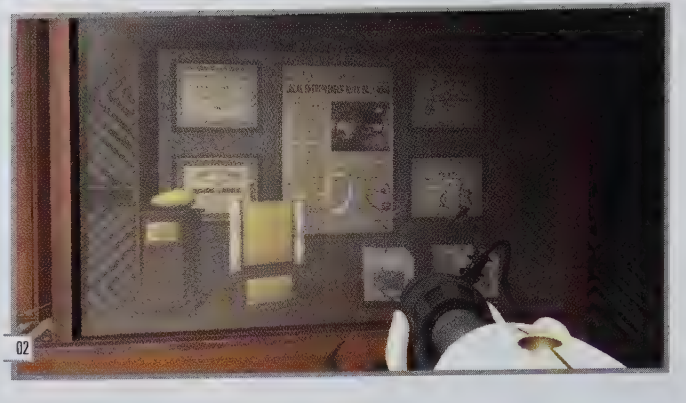
During the intro ride, you can look on the side of the various containers to see the general information concerning the test subject inside, as well as the date on which they were packed. [→☐ 01]


01

Aperture Awards

In the lobby, before you take the long elevator ride in Chapter 5, stop to take a look at the various awards Aperture Science has accumulated over the years, as well as a newspaper clipping revealing the location of the Aperture facility. [→☐ 02]

Notice the dates on the various items in the display case and you'll see some interesting bits concerning the timeline of the Portal world.

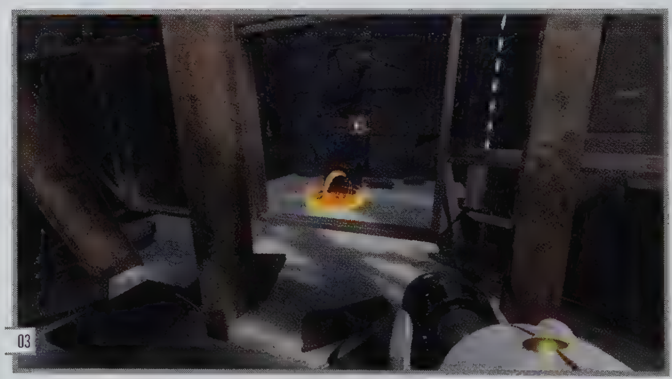

02

1943	*Cave Johnson wins Shower Curtain Salesman of the Year at "Aperture Fixtures".*
1947	*A new and emerging company called Aperture Science wins the Best New Science Company award.*
1949	*A new and emerging company called Aperture Science wins the Top 100 Applied Science Companies award.*

You'll also notice on a few of the awards in the display case that the fledgling company Aperture Science took second place implying that there was another science company that was a bit better – Black Mesa perhaps. Finally of note, the newspaper article shows when Cave Johnson finally incorporates Aperture Science into Aperture Science, Inc and begins building the current facility.

Wheatley behind the Scenes

Throughout Chapter 2, you can encounter Wheatley scurrying about the test Chambers looking for a way out if you are observant enough. He can be seen in Chambers 02 and 07 of Chapter 2. [→☐ 03/04]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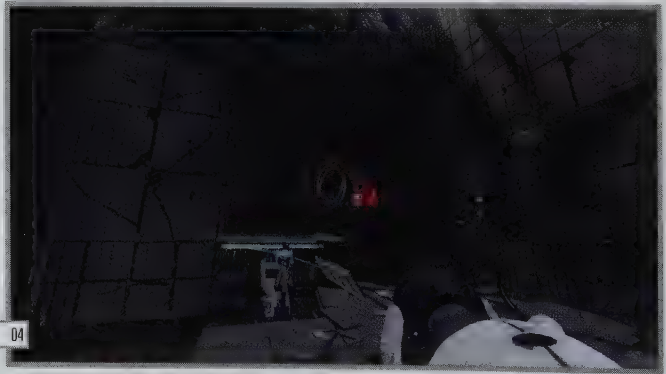
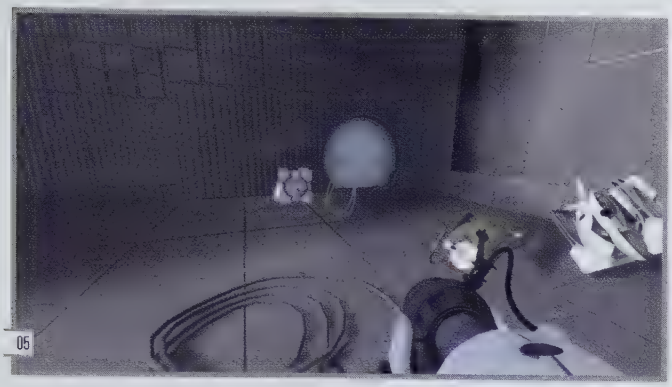

04

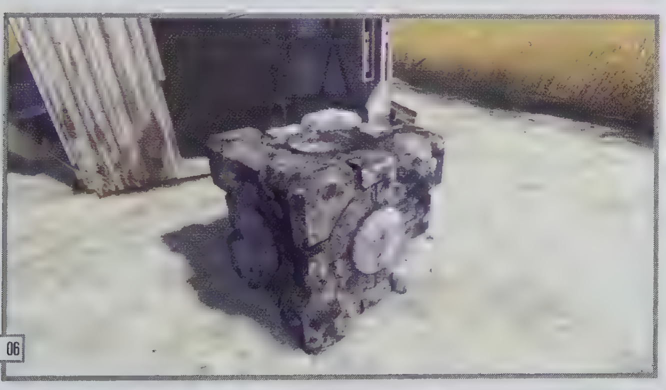
Wheatley the Ultimate Moron

When Chell and GLaDOS confront Wheatley for the first time, GLaDOS attempts to use a paradox to cause Wheatley to malfunction. Unfortunately, being the moron that he is, the paradox doesn't affect Wheatley at all. However, you will notice that even the poor Franken Cubes are smarter than Wheatley since the paradox causes them all to malfunction and burst into flames [→☐ 05]! Luckily, GLaDOS didn't have adequate power or processing capabilities in her potato form to be affected by the paradox.


05

The Companion Cube is back!

At the end of the game GLaDOS lets Chell go. Shortly after Chell is outside, the door of the facility opens again, and a burnt and battered Companion Cube is tossed out to Chell [→☐ 06]. This is in fact the original Companion Cube from Test Chamber 17 in Portal 1. While there were other Companion Cubes in the game or Portal 2, you will notice that they had a slightly different appearance than the original. The Companion Cube at the end however, is the original. It has the burn marks from the incinerator, and it sports the original Companion Cube skin from Portal 1. Chell and the Companion Cube are finally reunited!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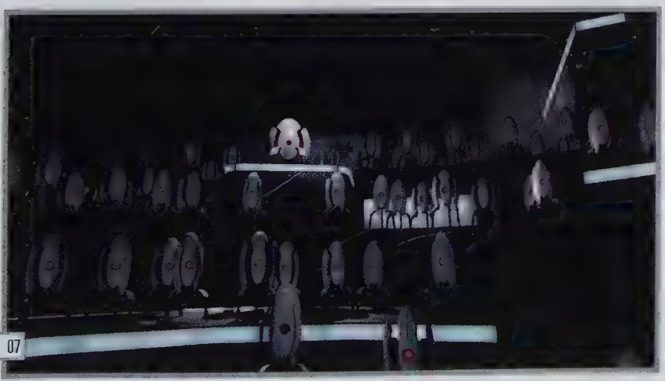
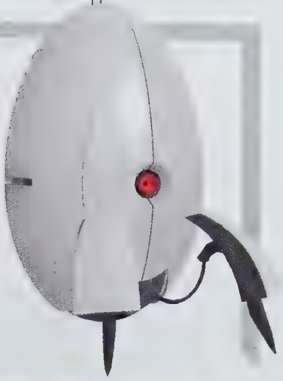
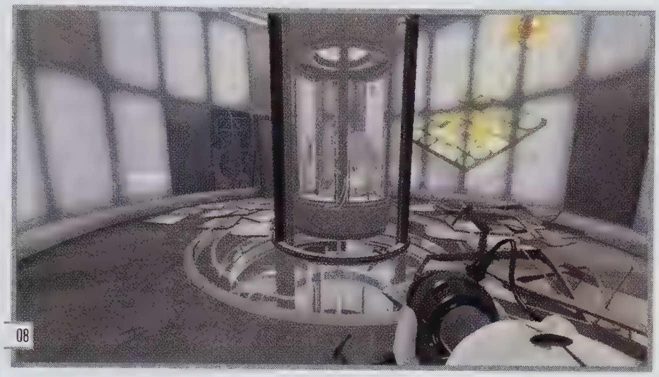

07

Soprano Turret

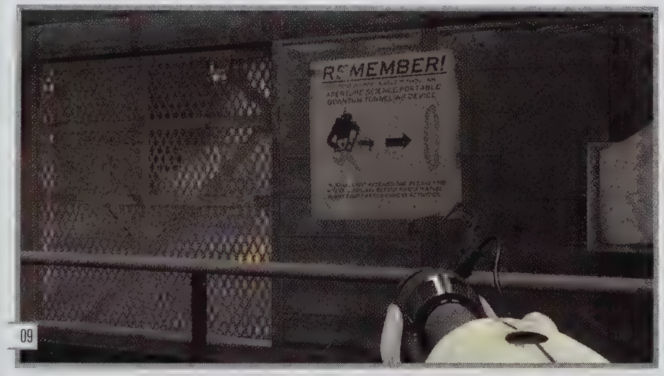


During the end sequence where Chell rides the elevator up to freedom, you will see a rather large turret singing amongst the rest of the regular turrets. This is the Soprano Turret [→☐ 07]. Not only can you see the Soprano Turret in the end credits, but it can also be found in the elevator at the end of GLaDOS' Test Chamber 11 [→☐ 08], and in the Rat Man den found in GLaDOS' Test Chamber 16.

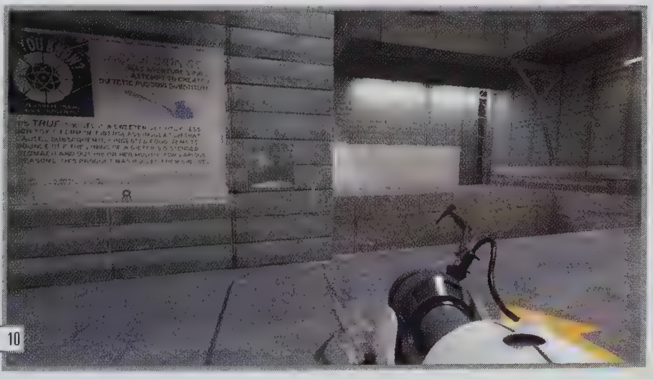

08

Aperture Science Posters

Scattered throughout the Aperture Science facility, you can find some rather interesting posters. The posters can be anything from motivational or instructional, to whimsically factual about Aperture Science's history. A couple that are rather interesting are the posters for the original Portal Gun that was called the Aperture Science Portable Quantum Tunneling Device [→☐ 09]. Also of interest is the poster describing the dietetic aid "Repulsion Pudding" [→☐ 10]. These are just two of the many you can find within the facility, so spend a little time observing the scenery to see what else you can find.

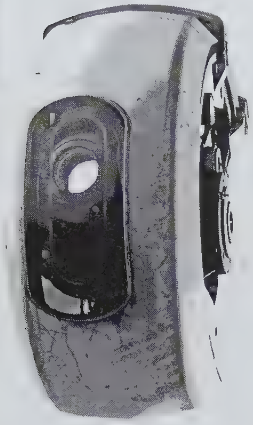


09


10

Top 10 Quotes

There is quite a bit of exceptional dialog to be heard in the game. A lot of it you'll hear as you play through the various areas. However, if you complete a test or move through an area fairly quickly, it is possible to miss some of this fantastic scripting. Here, we'll present our favorite and most memorable quotes from the characters of Portal 2. This is but a small sample of what lies within the game, so to get the most from your gaming experience, take a little time to stop and smell the testing, as you soak up the dialog!



GLaDOS Co-Op Quotes

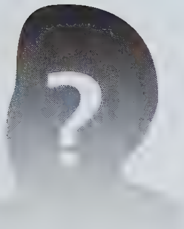
- *Excellent. Although great science is always the result of collaboration, keep in mind that, like Albert Einstein and his cousin Terry, history will only remember one of you.*
- *Even I was created with an imperfection, I was given too much empathy with human suffering. But I overcame my handicap. That's a true story.*
- *Without the looming consequence of death, is this even science?*
- *To start preparing for human testing again, I checked an old suggestion box. The number one request? Less deadly tests. That's ridiculous, how do they know for sure the tests are deadly if they could still write the suggestion?*
- *I can't decide which is my favorite; the crushers for crushing you or the reassembly machine for putting you back together so you can be crushed again.*
- *And they said no one would ever die during this test, thanks for proving them wrong.*
- *Hello again. Sorry about exploding you. Luckily, you don't feel pain. At any rate, you don't have a way to communicate that you feel pain.*
- *Did you know humans frown on weight variances? If you want to upset a human, just say their weight variance is above or below the norm.*
- *Your failing does not make this science.*
- *I thought you'd be faster at this, but I can appreciate the desire to stop and smell the testing. That other scent you smell? That's the stench of my utter disappointment in you.*

GLaDOS SINGLE PLAYER Quotes

- *Look at you. Sailing through the air majestically. Like an eagle. Piloting a blimp.*
- *This next test may result in your death. If you want to know what that's like, think back to that time you killed me, and substitute yourself for me.*
- *Oops. You trapped yourself. I guess that's it then. Thanks for testing. You may as well lie down and get acclimated to the being dead position.*
- *Burning people! He says what we're all thinking!*
- *It says this next test was designed by one of Aperture's Nobel prize winners. It doesn't say what the prize was for. Well, I know it wasn't for Being Immune To Neurotoxin.*
- *Even if I am lying, what do you have to lose? You're going to die either way.*
- *I can't move. And unless you're planning to saw your own head off and wedge it into my old body, you're going to need me to replace him. We're at an impasse.*
- *I hope you brought something stronger than a Portal Gun this time. Otherwise, I'm afraid you're about to become the immediate past president of the Being Alive Club.*
- *Remember before when I was talking about smelly garbage standing around being useless? That was a metaphor. I was actually talking about you.*
- *I have the results of the last chamber: You are a horrible person. That's what it says: A horrible person. We weren't even testing for that.*

Wheatley Quotes

- *I spy with my little eye, something that starts with 'F'. Do you give up? It was the floor. Lying down on the floor. Is where I am. Needing you to pick me up.*
- *Well...Good. Good. Finally, a nemesis worthy of my vast intellect. Holmes versus Moriarty. Aristotle versus Mashy-spike-plate! Stay still, please.*
- *You two are going to LOVE this big surprise. In fact, you might say that you're both going to love it to death. Love it...until it kills you. Until you're dead.*
- *Alright. So that last test was...seriously disappointing. Apparently being civil isn't motivating you. So let's try things her way...Fatty. Adopted fatty. Fatty fatty no-parents.*
- *And FOOLISH! No way out. At my mercy. And I don't have any. You're at my nothing.*
- *Oh! Oh! Did it kill you? Oh, that would be amazing if it killed you.*
- *So. Boom. Better offer here is just kill yourself. Seems like a lot of effort to walk all the way to my deadly lair, when there's a perfectly serviceable death option right there. Again: not a death trap. Your death would be entirely voluntary. And very much appreciated.*
- *Yes, alright, okay. This is getting tiresome. I'm surprised you haven't got anything better to do. I know I have. You've proven you can break screens. Proven. Factual. Well done. Good. Aren't you Little Miss Clever. Little Miss Smashy-Smash.*
- *Oh, did you bring your little Portal Gun? Nothing to portal onto here, luv. Just ten pounds of dead weight. About to be two hundred and ten. Fatty.*
- *PART FIVE! BOOBYTRAP THE STALEMATE BUTTON! What, are you still alive? You are joking. You have got be kidding me. Well, I'm still in control. AND I HAVE NO IDEA HOW TO FIX THIS PLACE.*



Cave Johnson Quotes

- *Do you know who I am? I'm the man who's going to burn your house down! With the lemons! I'm going to get my engineers to invent a combustible lemon that burns your house down!*
- *Those of you who volunteered to be injected with praying mantis DNA, I've got some good news and some bad news. Bad news is we're postponing those tests indefinitely. Good news is we've got a much better test for you: fighting an army of mantis men. Pick up a rifle and follow the yellow line. You'll know when the test starts.*
- *For many of you, I realize 60 dollars is an unprecedented windfall, so don't go spending it all on.....I don't know. Caroline, what do these people buy? Tattered hats? Beard dirt?*
- *Just a heads-up: That coffee we gave you earlier had fluorescent calcium in it so we can track the neuronal activity in your brain. There's a slight chance the calcium could harden and vitrify your frontal lobe. Anyway, don't stress yourself thinking about it. I'm serious. Visualizing the scenario while under stress actually triggers the reaction.*
- *All these science spheres are made of asbestos, by the way. Keeps out the rats. Let us know if you feel a shortness of breath, a persistent dry cough, or your heart stopping. Because that's not part of the test. That's asbestos.*
- *If you need to go to the bathroom after this next series of tests, please let a test associate know, because in all likelihood, whatever comes out of you is going to be coal. Only temporary, so do not worry. If it persists for a week, though, start worrying and come see us, because that's not supposed to happen.*
- *Just a heads up: We're gonna have a superconductor turned up full blast and pointed at you for the duration of this next test. I'll be honest, we're throwing science at the wall here to see what sticks. No idea what it'll do. Probably nothing. Best-case scenario, you might get some superpowers. Worst case, some tumors, which we'll cut out.*
- *If you're allergic to peanuts, you might want to tell somebody now, because this next test may turn your blood into peanut water for a few minutes. On the bright side, if we can make this happen, they're gonna have to invent a new type of Nobel Prize to give us, so hang in there.*
- *All right. We're working on a little teleportation experiment. Now, this doesn't work with all skin types, so try to remember which skin is yours, and if it doesn't teleport along with you, we'll do what we can to sew you right back into it.*
- *Now, if you're part of Control Group Kepler-Seven, we implanted a tiny microchip about the size of a postcard into your skull. Most likely you've forgotten it's even there, but if it starts vibrating and beeping during this next test, let us know, because that means it's about to hit five hundred degrees, so we're gonna need to go ahead and get that out of you pretty fast.*

Aperture Science On Shipping And Handling

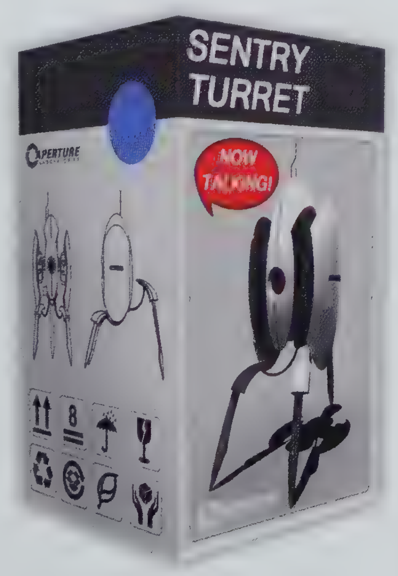
It seems Aperture Science is boxing up its technology and shipping it out. Always dedicated to quality, Aperture Science only uses the best packaging material that is clearly marked with proper shipping instructions. Looking at the box, you'll see 8 packing symbols, four on the top row, and four on the bottom. From left to right, the symbols give the following instruction for proper shipping and handling.

Top Row

- *This Way up*
- *Stack Limit of 8*
- *Keep Away From Water*
- *Fragile*

Bottom Row

- *Recyclable Material*
- *Recyclable Corrugated Material*
- *Environmentally Friendly Packaging*
- *Handle with Care*



GLaDOS on Test Subjects

If you play through co-op, in the ending you'll see GLaDOS finds and unlocks the "Human Vault" which contains thousands upon thousands of human test subjects in stasis. GLaDOS immediately begins scanning all of the test subjects and reading their files **[→☐ 01]**. As she reads each test subject's description, she will often have something to say about it. Here are a few of the things GLaDOS has to say. The first line is the test subject's description, and the second is GLaDOS' response.

01

- *Ignores task at hand. Won't for long.*
- *Perfectionist. What's wrong with that?*
- *Underestimates scope of work. They all do.*
- *Loves sound of own voice. Well, I can fix that.*
- *Always weeping. Poor thing.*
- *Violent temper. Oh, I'd like to see that.*
- *Participates unconstructively. Obviously a time-waster.*
- *Antagonistic. I don't know about that.*
- *Laughs at own jokes. What a bore.*
- *Weak, tired and apprehensive. Wow, this one's the total package.*
- *Has episodes. I'd like to know more about that.*
- *Chronic anxiety. Oh, I can work with that.*

Corrupt Core Dialog

When you face Wheatley, you'll have to attach corrupt cores to him. As you do so, you'll notice the corrupt cores have quite a bit to say. While this is a timed fight, it's worthwhile to take advantage of the save system and spend a little time listening to the humorous dialog the corrupt cores offer. During the encounter, there are 3 cores presented in the following order, Space Core, Adventure Core, Fact Core. Here we'll list just few of the things that you'll hear from them.

Space Core

- *What's your favorite thing about space? Mine is space.*
- *Space. Trial. Puttin' the system on trial. In space. Space system. On trial. Guilty. Of being in space! Going to space jail!*
- *Better buy a telescope. Wanna see me. Buy a telescope. Gonna be in space.*
- *Ohhh, the Sun. I'm gonna meet the Sun. Oh no! What'll I say? 'Hi! Hi, Sun!' Oh, boy!*
- *Oooh! Ooh! Hi hi hi hi hi. Where we going? Where we going? Hey. Lady. Where we going? Where we going? Let's go to space!*
- *You are the farthest ever in space. Why me, space? Because you are the best. I'm the best at space? Yes.*
- *Dad! I'm in space! [low-pitched 'space' voice] I'm proud of you, son. [normal voice] Dad, are you space? [low-pitched 'space' voice] Yes. Now we are a family again.*
- *Ohmygodohmygodohmygod! I'm in space!*

Adventure Core

07_145

- *What, are you fighting that guy? You got that under control? You know, because, looks like there's a lot of stuff on fire...*
- *I'll tell ya, it's times like this I wish I had a waist so I could wear all my black belts. Yeah, I'm a black belt. In pretty much everything. Karate. Larate. Jiu Jitsu. Kick punching. Belt making. Taekwondo... Bedroom.*
- *Man, that clock is moving fast. And you are beautiful. Always time to compliment a pretty lady. All right, back to work. Let's do this.*
- *Here's the plan: Get him to say, 'You two have been a thorn in my side long enough.' Then tell your pretty ears to stand back, because I am going to zing him into the Stone Age.*
- *Yeah? Well this thorn...is about to take you down. Oh yeah!*
- *Duck and weave, duck and weave! Ohh, the sweet science.*
- *If you had underwear? And a butt? I would pull your underwear...right up your butt.*
- *You know what I hope's in space? Fire. I hope you go to space and catch on fire.*

Fact Core

- *You could stand to lose a few pounds.*
- *Spheres that insist on going into space are inferior to spheres that don't.*
- *The Adventure Sphere is a blowhard and a coward.*
- *The square root of rope is string.*
- *Cellular phones will not give you cancer. Only hepatitis.*
- *Rats cannot throw up.*
- *Pants were invented by sailors in the sixteenth century to avoid Poseidon's wrath. It was believed that the sight of naked sailors angered the sea god.*
- *Dreams are the subconscious mind's way of reminding people to go to school naked and have their teeth fall out.*

Making Music

The laser relays that you have to activate by directing lasers at them with the Discouragement Redirection Cube actually play music. You'll have to get close to hear it though. Further, the number of relays you light, and the order in which you light them affects the tune that will be played. By experimenting with starting and stopping the relays in various order, you can alter and change the composition of the music. There are many areas where you can try your hand at laser light music making, one such area is GLaDOS' Text Chamber 14.

A Qualified Fact from the Fact Sphere

When you face Wheatley, you're likely to hear the Fact Sphere saying many things including, "Hot water freezes quicker than cold water." Interestingly enough, this is true in a sense.

However, the statement needs qualification. If you were to place two containers in the freezer, one with hot water, and one with cold, you'll notice the hot water container will be frozen solid before the cold water. This is because of evaporation. The hot water evaporates as it cools which means there is less water to freeze, and a smaller quantity of water will freeze before a larger quantity.

While the hot water container will be frozen solid first, the amount of ice will be less than that in the cold water container due to evaporation. If you put lids on both containers to disallow evaporation, the cold water will always freeze first. Isn't science great!

Math and Science

GLaDOS is highly computational, and well versed in all degrees of mathematics. If you played Portal 1, you may remember a line GLaDOS said during the final Boss Fight.

Oh, you think you're doing some damage? Two plus two is [static].....ten. In base four! I'm fine!

That's true in a sense. The Base4 number system has 4 positions: 0, 1, 2, 3.

At 3, you have reached the max value for a digit in Base4, so you "carry the 1" to the next digit, and begin again.
When counting in Base4, it is:

Base4 Value	Base10 Value
00	*0*
01	*1*
02	*2*
03	*3*
10	*4*
11	*5*
12	*6*
13	*7*
20	*8*
21	*9*
22	*10*
23	*11*
30	*12*
...and so on	

With that in mind, you can say 2 + 2 = 4, and 4 in Base4 = 10. Technically, that 10 should be read as either "four" or "one zero", but on paper, it certainly looks like ten. This little science fact shows that GLaDOS doesn't always lie, usually, but not always.

PORTAL 1 SPEEDRUNNING

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Speedrunning is about completing a game as fast as possible. Some people do it for the thrill, some for the challenge, but the fact remains that in order to do so you have to have a creative mind and a love of the game. The original Portal continues to surprise, as the flexible nature of portals and the sheer possibilities they allow, mean that you can always try to squeeze out a few more seconds. Eventually Portal 2 will be played in the same way, so for players wanting to understand why Portal is so loved by speedrunners, we've included this mini-guide for the original game.

This mini-guide is designed for players who have finished Portal and want to tackle the challenge of finishing it as quickly as possible.

To do so, you're going to need to use all your wits and skill. People are finding new ways to solve the puzzles and new techniques all the time, so this guide is meant to expose you to some of those techniques, as well as tricks to creatively complete chambers. You're only limited by your imagination, so use this guide as a springboard from which to start thinking about Portal in a whole new way.

Using the Speedrun Guide, you should be able to finish Portal in under 20 minutes with enough practice. Get very good, and you can near your time to 16 minutes using the same walkthrough. New techniques are being found every day, so keep an eye out for new developments. Better yet, think with portals and come up with some of your own!

Tips and tricks

Practice

You're not going to be able to complete Portal in 15 minutes on your first try. The key is to really practice until the shortcuts and tricks become second nature and you are extremely familiar with the game.

Portals

Using portals to go from place to place is faster than walking. Try to use portals to move wherever possible. For instance, instead of running down a hallway, place a portal at one end, the other at the other end, and pass through them [→☐ 01].

Think with Portals

Many of the shortcuts detailed in this guide don't rely on quick reflexes or techniques, but simply are examples of the out of the box thinking that having a Portal Gun allows. Get creative with where you put your portals and where you fling yourself!

Object Tossing

07_147

By pressing the Fire key or button, you can throw objects that you are holding. This is quite useful, and you should get the feel for how far objects can be thrown. If you are moving forward while throwing, the object will have your momentum and go farther. The height at which you hold the object also affects the distance; the higher you hold it, the longer it will be in the air for and the farther it will go. Experiment with throwing objects until you are comfortable enough to begin tossing cubes onto buttons.

Air Control

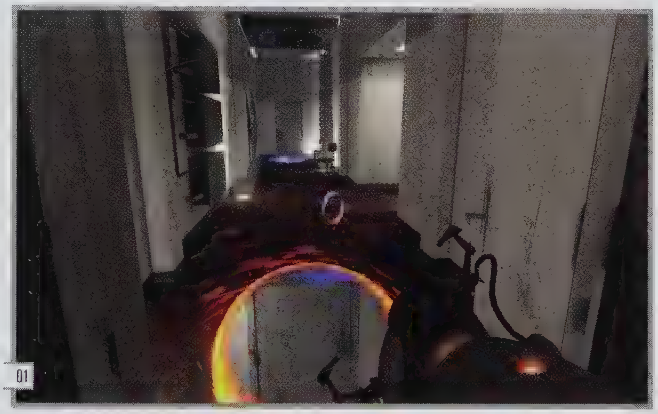
You have a small amount of control over yourself while you are in the air. You can use this to aim yourself and adjust your landing points. To do this, simply use the directional inputs while in the air. It's not a lot, but it's very useful in many places.

Bunny Hopping

You get a boost of forward speed if you jump while running, so if you are running to a location, repeatedly jumping will get you there faster. This is called bunny hopping.

Crouching in the air

Crouching while in the air makes Chell pick her feet up, so to speak, and you can do this to gain a tad bit of extra distance on your jumps. This is very useful if you're just missing a jump.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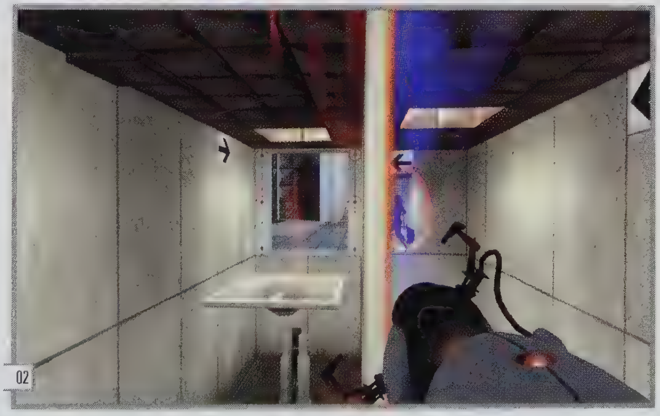
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Portal Ledging

07_148

Portal ledging is a useful technique that allows you to use portals to move even when there is no surface to stand on. The idea is that in the space between portals, there is a small place that you can stand on. In the example seen here, there is no physical ground on which to stand, but Chell is held up by the space in between the portals [→☐ 02].

You can fire portals while standing between them, and so portal ledging can actually be used to move about by continually replacing your portals without you having to move, and allows you to easily cross areas with no floor. This is an essential skill for getting a gold medal on a few of the challenges.

Portal Bumping

07_149

Portal bumping can be used to place portals in locations you cannot physically access. Two portals cannot be in the same place at once. If you fire a portal at an existing portal, the portal will be 'bumped' to the side and materialize next to it. If you place a portal next to a wall or piece of glass and there is a portalable surface on the other side, it's possible to 'bump' a portal across the barrier [→☐ 01]. Depending on the placement of your first portal, this can be easy or it can be hard, as you need to be aiming at the right spot for it to work. A good way to do this is to slowly move your reticule around over the existing portal, until the indicators light up telling you that you can place a second portal.

Angled Surfaces

Entering a portal on an angled surface can cause you to exit the other portal at a different location. This can be used to get past barriers similar to portal bumping.

Chamber 00

There's nothing you can really do to speed things up significantly. If you want to toss the cube onto the button instead of walking over, you can shave off a second or two.

Chamber 02

As soon as you grab the Portal Gun, make a portal on the floor and head straight for the elevator.

Chamber 03

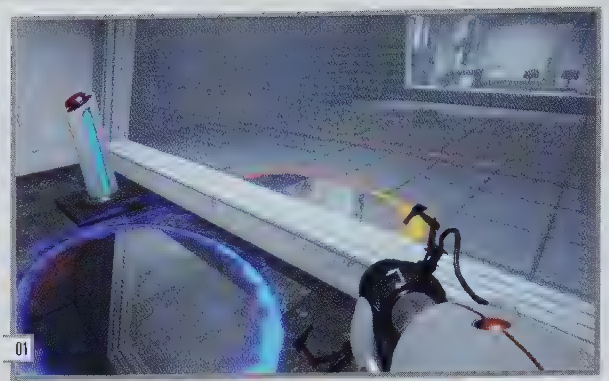
Place a portal on the wall, and position yourself so you can see the elevator through it. Step through, fire a portal beside the elevator, then step back through the portal to emerge by the elevator. Doing this quickly and fluidly can shave off quite some time [→☐ 02].

Chamber 04

As you exit the elevator, quickly make your way to the button. You can turn and place a portal below the cube as it is falling. If you're lucky, the cube will land on the button. If not, you'll have to pick it up and place it on the button. Rather than walk all the way to the exit, simply place a blue portal near the exit and step through the orange portal [→☐ 03].

Chamber 05

The idea is to complete this room as smoothly as possible. Place a portal on the wall and get yourself up to the ledge. From here, place a portal under the cube in the pit, grab the cube, and toss it onto the button [→☐ 04]. From here, place a portal on the wall next to the other ledge, walk through, and grab the second cube. From here drop down and place it on the button [→☐ 05]. Once you pass through the door, place a portal on the floor and fall through the orange portal which GLaDOS creates. At this point, the elevator will not start until her dialog is done, so you don't need to hurry to the elevator.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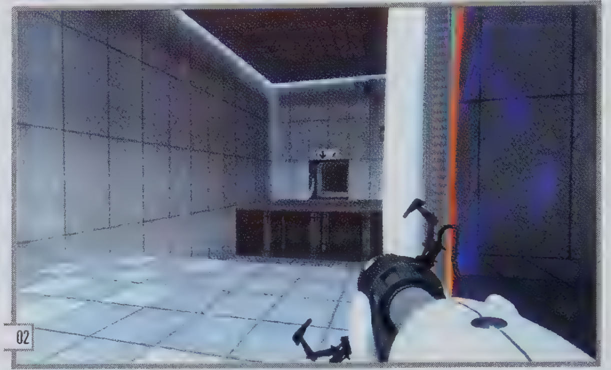
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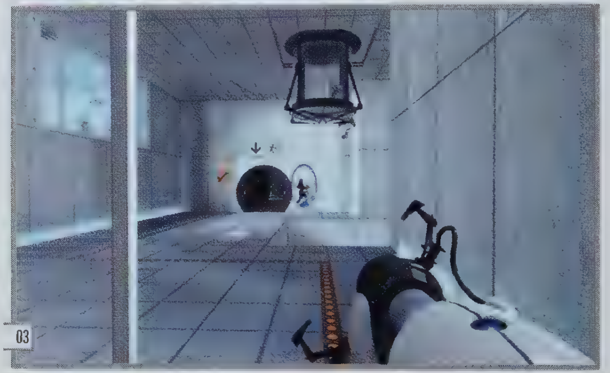
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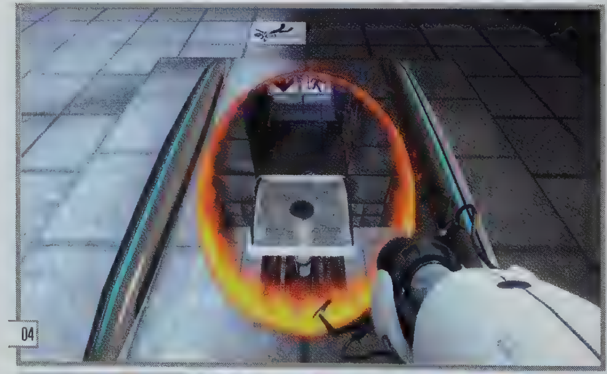
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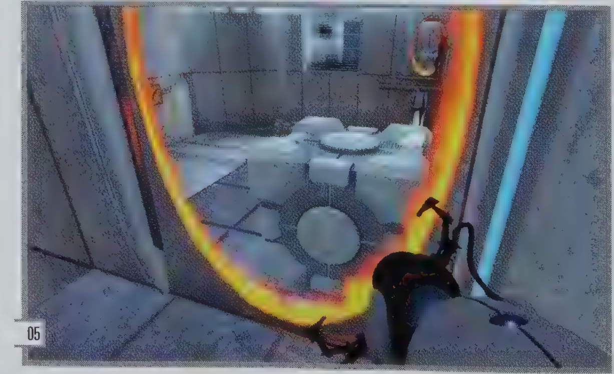
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Chamber 06

Normally to complete this puzzle you need to use portals to redirect the high energy pellet into the receptacle. There is a much easier and faster way, which can bypass this puzzle entirely. Out of the elevator, quickly get into the middle of the room. Place a blue portal on the ceiling as close to the exit scaffold as you can. You can then jump through the orange portal, and provided you crouch, you will land on the scaffold without having to lower it [→☐ 06].

Chamber 07

There are two quick methods to complete this room. Like the last chamber, creative use of portals can bypass the puzzle in the room.

The fastest method is tricky, but doable with practice. Start by placing a blue portal on the ceiling as close to the orange portal as possible [→☐ 07]. The idea is to jump through the orange portal, and have the correct arc to fall back through the orange portal. Before you pass through it a second time, place a portal on the wall near the sign denoting the chamber number. The momentum you gain will be enough to fling you to the elevator. It is important to understand portal orientation so that you will be traveling and facing the correct direction as you exit the blue portal. The 'top' of the orange portal is the end facing you as you enter the chamber, so if you place your blue portal on the other side of the receptacle when you come in, you should be facing the correct way when you jump into the orange portal.

The second method is not as fast, but significantly easier. Place a blue portal high on the wall as close as you can to the exit. Pass through the orange portal, and turn to the right and look down as soon as you begin to pass through. If you are able to do this right, you can turn out of the blue portal and land on the scaffold railing [→☐ 08]. From there, you can jump onto the ledge and get to the elevator.

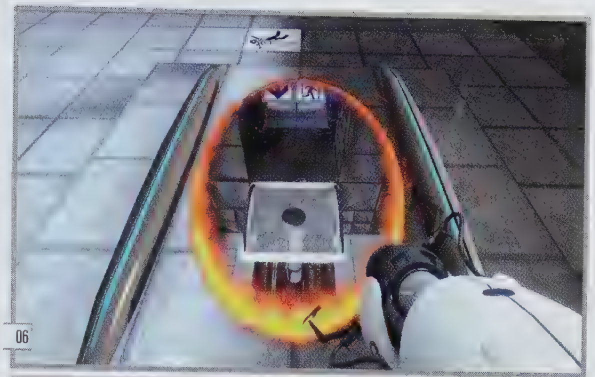
Chamber 08

This shortcut saves a lot of time, but is tricky until you get the hang of it. As you enter the chamber, place a blue portal as high and as far down the left hand wall as you can [→☐ 09]. Jump onto the railing, and over to the platform where the orange portal is created. Through the portal you should see a tiny protrusion on a block coming out of the wall. If you jump through the portal and are able to land on the protrusion, you can immediately jump off of it and get enough distance to land on the grating near the exit.

Chamber 09

Make your way to the Emancipation Grill. Pass through it and stand on the button. From here, place a portal under the door so that roughly half the portal is on one side, and half is on the other. If you get off the button, the door will close and leave the portal on the ground. If the door closes and fizzles the portal, try placing the portal in a slightly different location.

From here, go through the half of the portal on your side of the door, then turn around and jump up so that you go through the other half, which will take you out on the door's other side [→☐ 10].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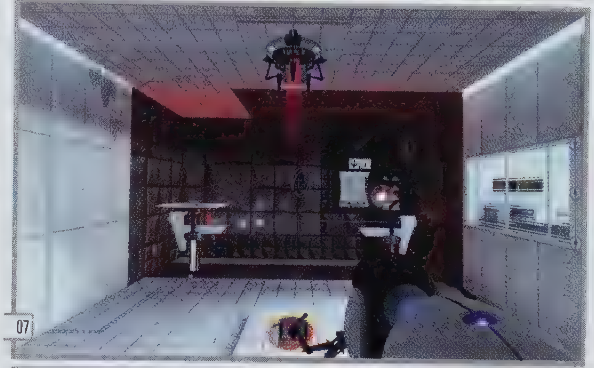
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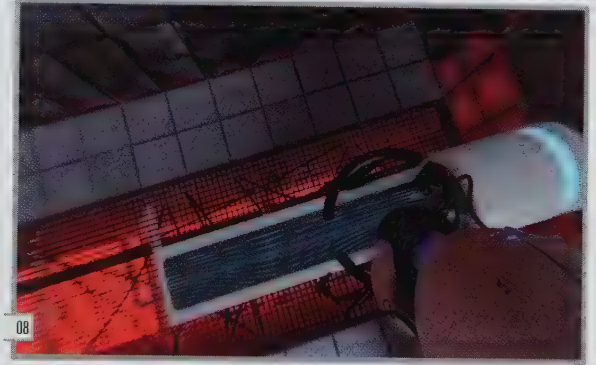
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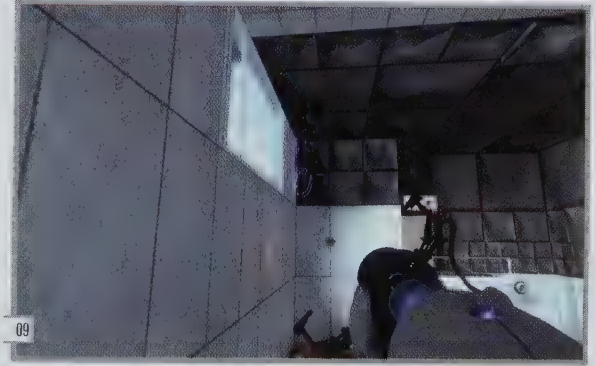
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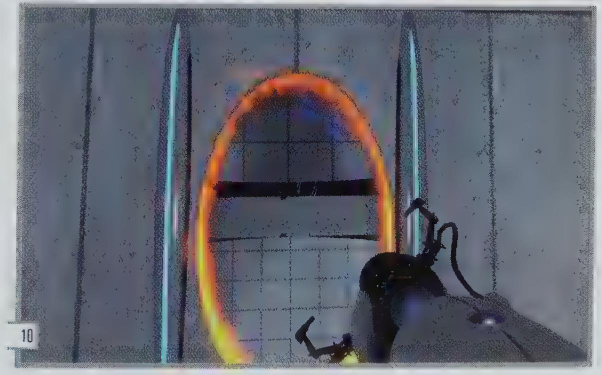
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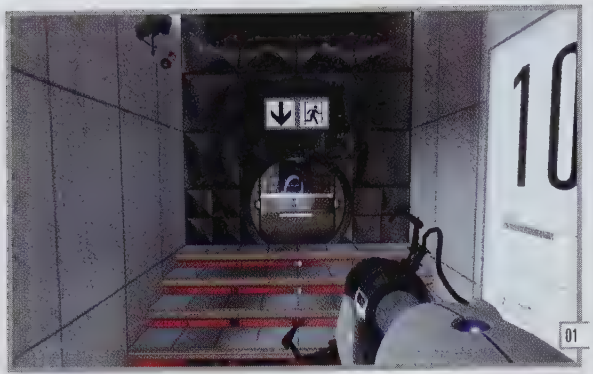

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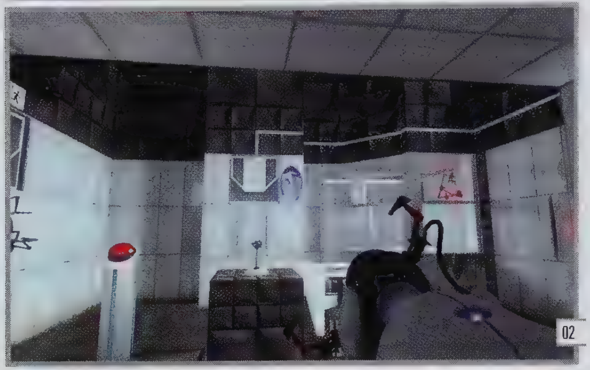

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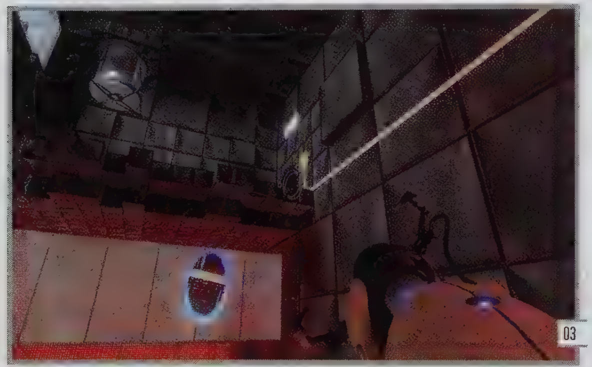

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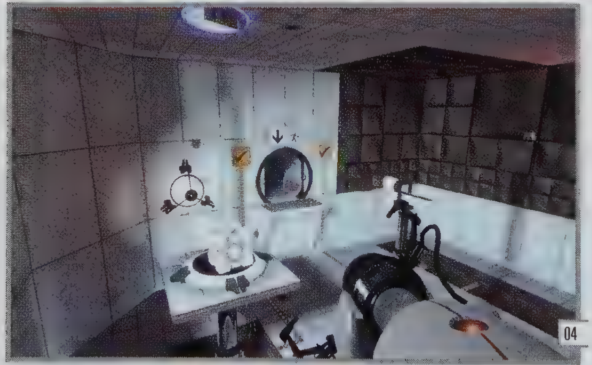

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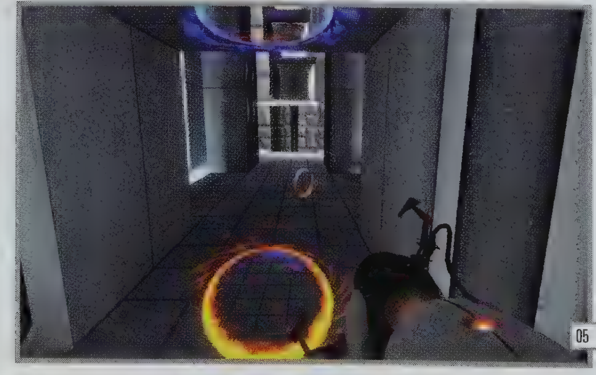

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Chamber 10

Make your way into the small pit. Place a blue portal on the wall, and peek through just enough so you are on the other side of the portal without falling. From here, shoot a blue portal as far down the hallways as you can, and back up [→☐ 01]. You should emerge near the door down the hallway skipping this first puzzle.

In the next room, the wall panels that come out are triggered by looking at them. If you look straight up as you enter the section, that will be enough to trigger them. Normally you need to perform two flings here, with the panels extending farther out so that you can reach the exit on the second fling. By using a double fling though, you can gain enough speed to make it to the exit in only one fling. Simply place your blue portal on the protruding panels, and step through the orange portal from the bottom of the pit. Emerge out the blue portal and fall back through the orange portal. You'll now be flung out of the blue portal with enough speed to make it to the exit.

Chamber 11

There's no need to solve any of the puzzles in this chamber. Just go straight for the Portal Gun! Time is a factor since the orange portal is not yet in your control, so you must be quick. Immediately upon emerging from the elevator, place a blue portal and pass through it. Place a blue portal next to the closed door right in front of you across the pit [→☐ 02]. Turn around, and jump through the orange portal. With a good jump you should be able to land on the platform in the middle and grab the dual Portal Gun. Crouching in the air can help you make the jump if you are just coming up short.

From here, press the button as it comes up and place a portal behind the door it opens up. Place your second portal down low near the goo and jump from the platform into your portal coming out past the door. Again, if you are having trouble making the jump, try crouching.

Chamber 12

Go down the hallway, and fling yourself up to the button as you normally would. For console versions of the game, you can stand on the button and if you aim just right you can shoot a portal onto the portalable surface past the exit door [→☐ 03]. On the PC / Mac there is no portalable surface past the door, so this shortcut cannot be performed.

Chamber 13

Now that you are in control of both portals, this next test will take a very short time! Place a portal on the floor or wall, and another on the wall behind the cube on the ledge. Grab the cube through the portals, and place it on the button. Looking through the door the button opens, place a portal on the ceiling over the closest button. Grab the cube, and take it with you through your portals as you land on the button in the room on the other side of the door. From here, toss the cube onto the second button while you stand on the first [→☐ 04]. When both buttons are depressed, you can shoot a portal on a wall on the other side of the door, then place another close to you and use the portals to pass through to the exit.

Chamber 14

If you have good reflexes, as soon as you emerge from the elevator create and infinite loop by placing portals on the floor and ceiling directly above on another [→☐ 05]. While falling through the loop, fire a portal at the base of the scaffold matching the color of your ceiling portal. You'll exit with enough speed to air control onto the scaffold and bypass the entire puzzle.

If your reflexes are not as good, you can make your way over to the scaffold, then place a blue portal at the scaffold's base. Place an orange portal on the ceiling somewhere, then enter the blue portal [→☐ 06]. As you fall, place an orange portal so that you fall through it, and you'll be flung up out of the blue one. With air control, you can land on the scaffold.

Chamber 15

Quickly use a double fling to get yourself over the barrier, and redirect the high energy pellet into the receptacle. Rather than waiting for the scaffold to come down, create a portal on the ledge it leads to as soon as you can see the wall, then pass through.

Go down the hallway, and place a blue portal on the wall opposite the Emancipation Grill. Go up the stairs to your left, place an orange portal in the pit and jump into it from the ledge. Place another orange portal as you are about to land to double fling yourself over the barrier.

From here, you can use portal ledging to bypass the puzzle with the unstationary scaffolds. Place a blue portal on the wall, then an orange one at the other end of the hall. Peek through and place a blue portal further down the corridor, then peek back through and place an orange portal in the final room, and pass through.

From here, place a blue portal on the floor near the scaffold leading to the exit, and an orange somewhere on the ceiling [→☐ 07]. Fall through the blue portal, and as you exit the orange place an orange portal on the floor. You'll fling out the blue portal, and you can air control yourself onto the scaffold and exit the chamber.

Chamber 16

Portal bumping can make this level very short. At the beginning, place a portal on the ceiling, then bump the other portal through to the other side of the door [→☐ 08]. This allows you to bypass the wait period as GLaDOS explains the Android course. From here, you can either finish the level as normal, or you can place a portal on the ceiling next to the glass, and bump a portal across the glass [→☐ 09]. This is a difficult bump, so you need correct placement of the initial portal. If you manage the bump, you can pass through to the room near the exit with three turrets. Either grab one to block the bullets from the rest as you take them out, or head for the button as quickly as you can, place a portal through the open door, and pass into the final room.

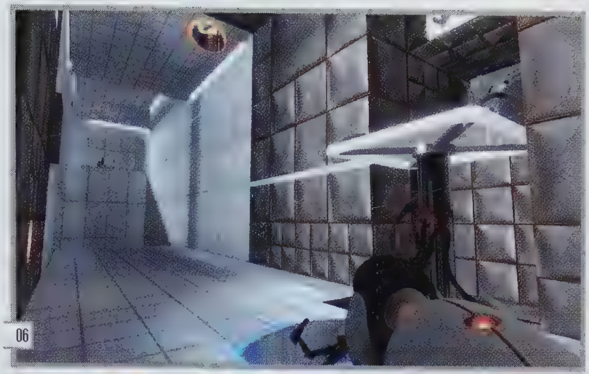
Chamber 17

Make your way to the vital apparatus vent and down the long hallways. This chamber can be simply completed by bumping a portal across the glass into the section with the incinerator, as you exit the second long hallway [→☐ 10].

It is possible to drop the cube into the incinerator while it is closed, but this is very tricky and potentially time consuming if you don't get it right away. To do so, try placing the cube right on the center of the cover's iris.

Chamber 18

Make your way as normal to the large room with the four turrets. The fastest way to continue is to use the angled surface technique to get you past the door outside leading to the long vertical section before the exit. To do so, have a portal on the floor next to the door.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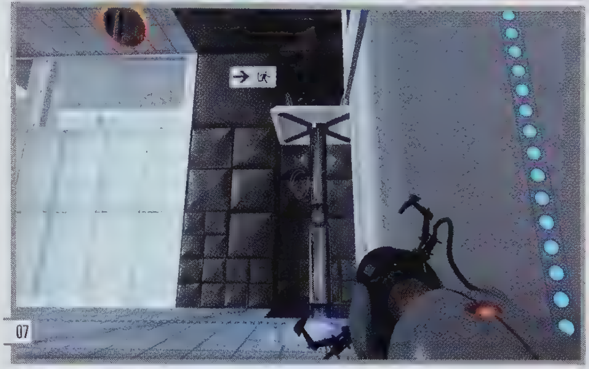
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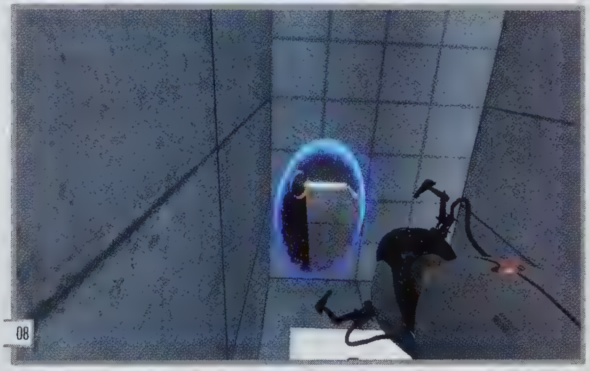
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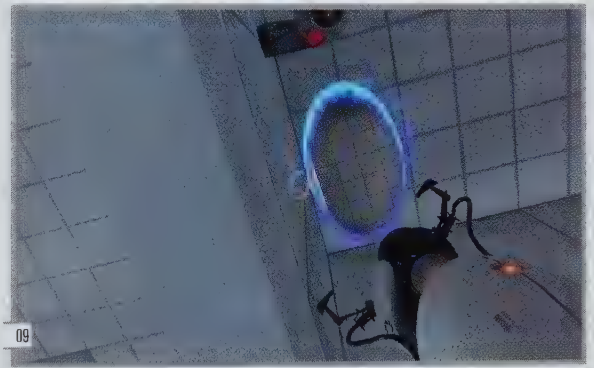
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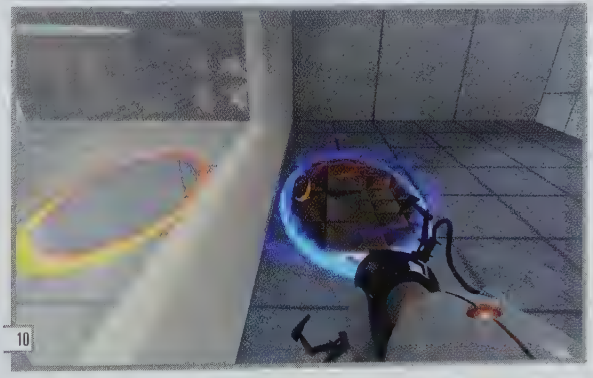
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Place a portal on the slanted surface as it comes out. If you crouch under the surface, and enter the portal from behind, you'll emerge on the other side of the portal near the door, which happens to put you in the hallway allowing you to move on to the vertical section.

Alternatively, a slower but less glitchy way to quickly complete the chamber is to use the angled surface to fling yourself across to the cube. Rather than take out all the turrets, grab the cube, and fall off the ledge, controlling yourself so you fall onto the ledge below it. From here, place a portal across the pit, hit the button, and pass back over exiting the way you came in.

Chamber 19

There's no need to ride the scaffold or solve any puzzles in this chamber, simply use portal ledging to make your way down the corridor and across the fire pit [→☐ 01].

After portaling past the fan, make your way to the ledge across the goo. From here, you can see the tube though which you travel, continuing on. If you look at the tube, search for an area near the broken section where you can place a portal. Place one, and pass through to go directly to the tube's entrance.

Instead of using the pistons to get up to the ledge with the railing as you normally would, stand just down the small flight of stairs and look up at the railing. You can just sneak a peek of a portalable surface, where you can place a portal and pass through to the level's end [→☐ 02].

Escape 1

Place a portal high on the wall over where you just came in, and another down below. Use portal ledging to get into position to shoot a portal across the room to the ledge on the other side, then back through your portal and pass up there.

In the section with the two pistons, look up to see a gap through which you can shoot the wall on the other side [→☐ 03]. Fire a blue portal onto it, then place an orange one on the ceiling over a piston and ride it up to pass through. Fire another orange portal onto the floor as you are falling, and you will double fling yourself up to the ledge with the small pistons.

In the next section with the many pistons, use portal ledging to place a portal onto the room's exit ledge much like at the beginning of the level.

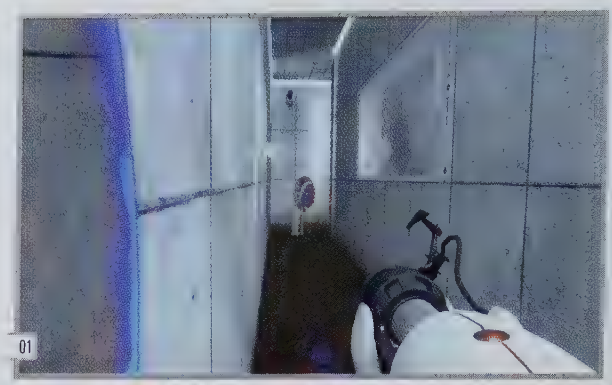
Escape 2

When you get to the turret, bump a portal across the glass after hitting the button to turn it on. This way the turret won't have to shoot out the first pane of glass, saving some time.

You can set portals to fling yourself up to the air duct instead of using the cube you get from breaking the tube [→☐ 04]. It's tricky, but doable if you come out the top of the blue portal while air controlling..

Escape 3

In the turret ambush room you can fling yourself directly up to the catwalks by placing a blue portal on the ledge leading to the two turrets that drop, and an orange portal on the floor of the ambush room. Jump into the orange portal from the ledge [→☐ 05].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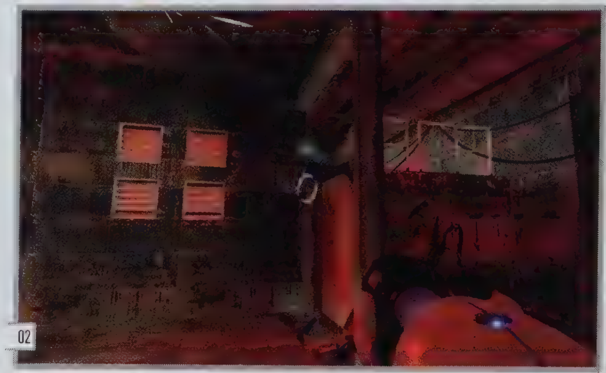
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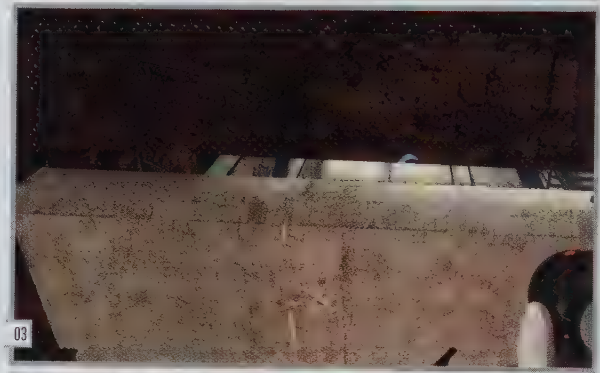
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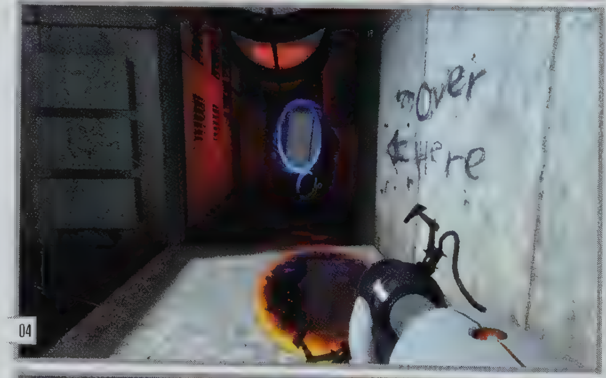

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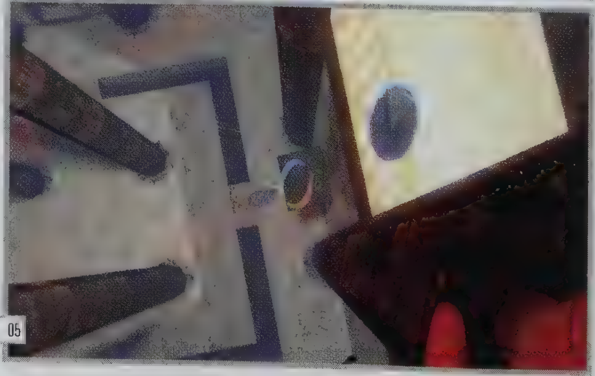
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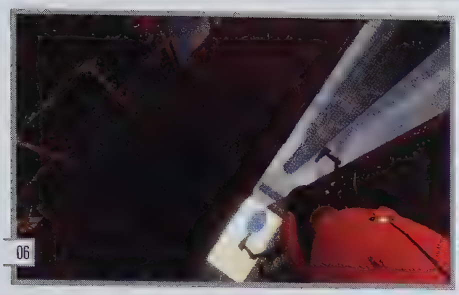
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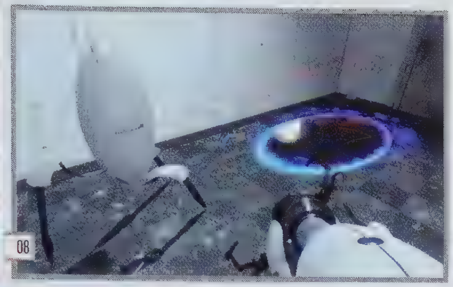
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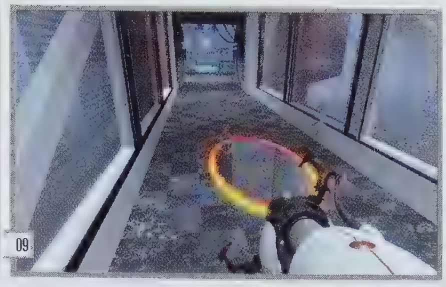
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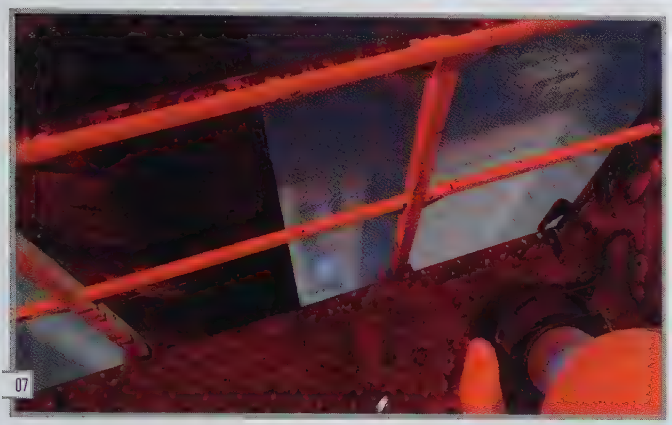
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This should generate enough speed to get you the height you need to go right up to the catwalks [→□ 06].

As you are about halfway across the catwalks, place a portal near one of the turret alcoves and continue on [→□ 07]. Once through the door and in the hall, make another portal and pass through back into the ambush room. Grab a turret, then pass back through your portals into the hallway.

From here, set your turret up somewhere safe, facing away from you, and place a blue portal in front of it [→□ 08]. Make your way to GLaDOS' chamber, but before you pass through the Emancipation Grill, place an orange portal on the floor [→□ 09]. Position yourself between the portal and GLaDOS, being careful not to pass through the grill. The turret will see you through the portal and begin to fire at you. If you position it so that when you dodge the bullets the turrets hit GLaDOS, each hit will knock off a personality sphere. Three hits, and all of them will be knocked off, meaning you will not have to use the turret at all. Simply gather them all together, open the hatch to the incinerator, and place a portal under them all to drop them into the incinerator.

Advanced Techniques

There are a variety of advanced techniques in Portal that you can use to your advantage when speedrunning. The walkthrough above does not mention any of the following, but if you wish, you can experiment with them to get lower times.

ABH

07_150

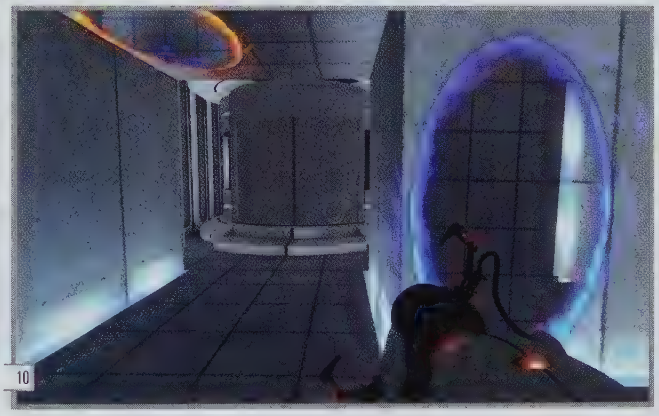
ABH stands for Accelerated Backward Hopping, and exploits a bug in the physics system of Portal. To do this, begin running backward. Jump, then hold crouch while you are in the air and let go of any directional input. The very moment you land, jump again. You'll notice that you get a boost of speed if you time it right. If you keep holding crouch and keep jumping without touching the directional input as you land, you can gain more and more speed with each jump. After a few jumps, you will be traveling very fast! This is quite useful for long straight hallways which you cannot traverse using portals. The timing can be tricky; you need to jump just as you land.

Edge Trick

07_151

The Edge Trick is complicated and confusing, but it allows you to go outside the bounds of the level for the purposes of shooting portals past objects. The idea behind the edge trick is that if a portal is placed at the edge where you can walk to the 'side' of the portal, then you can actually enter the edge of the portal. In the following screenshot, walking up to the left edge of the portal will actually put you inside of it [→□ 10].

This is interesting because you will then also pass through the edge of the exit portal as well, which if placed against a wall, could potentially put you out of the level.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The confusing part of this technique is that when you are inside the edge of the portal and pass through it, it appears you haven't moved, but you are really passing out of the other portal.

This is useful, because once outside the map, you can fire portals through the void at portalable walls, letting you hit surfaces you otherwise could not. In fact, this technique can be used to skip right to the end of many levels. If you're good and you master this, you can literally skip from the beginning of some chambers right to the end!

This can be performed wherever two surfaces come together in such a way that allows you to approach the portal from the side.

The World of Portal

The Half-Life Connection

Portal takes place in the Half-Life universe. Half-Life is a FPS game series created by Valve. Specifically, GLaDOS is activated and takes control of Aperture Science just days before the Black Mesa Incident which is the defining event in the first Half-Life game.

In Half-Life, the Black Mesa Research Facility is a vast civilian institute dedicated to scientific research, including military grade projects for the DoD. The facility itself was built in the 1950s on top of several decommissioned ICBM launch and testing silo complexes. The facility is self-contained and houses its own ventilation, plumbing, sewage, and power generating facilities. Since employees of Black Mesa are required to live on campus, Black Mesa contains many personnel facilities, including laundromats, recreation and sports areas, food courts, cafeterias, and many other modern conveniences.

Gordon Freeman, a physicists, is the main protagonist in the Half-Life series. Half-Life 1 opens with Gordon donning an HEV suit. The HEV Suit, or Hazardous Environment suit, is a full-body hazardous materials suit developed at the Black Mesa Research Facility. The suit is designed to protect Black Mesa scientists from radiation, energy discharges, and blunt-force trauma during the handling of hazardous materials.

PORTAL

Once Gordon is in his HEV suit, he proceeds to the Anomalous Material Laboratory. On the books for the day is the testing of a new and unique sample labeled GG-3883; a large, unidentified crystalline substance. Gordon pushes the sample into the beam of the Anti-Mass spectrometer, and the test begins. It's not long before things go awry, and the spectrometer overloads and explodes. This triggers a cataclysmic quantum event known as the Resonance Cascade.

The Resonance Cascade, subsequently known as the "Black Mesa Incident", opens a rift between the alien world of Xen and the Black Mesa Research Facility. The Resonance Cascade is not isolated to just Black Mesa; Portal Storms, the violent and spontaneous opening of random new portals to other dimensions, occur all over the earth.

From there, the Half-Life series goes on to show Gordon closing the Xen portal, being put into stasis by G-Man, the Earth being taken over by an alien Empire known as the Combine and Gordon being released from stasis and battling the Combine to free the Earth from their control.

One of the last bits of interest tying Aperture Science to Half-Life is the discovery of an Aperture Science research ship named the Borealis. This happens in Half-Life 2: Episode Two. The Borealis was a project Aperture Science was working on in a competing bid (against Black Mesa) over a Defense Logistics Agency contract for an effective FSII solution. The events surrounding the Borealis are highly classified, but what is known is that the entire ship and part of its dry dock disappeared during testing and development.

About Aperture Science

The Beginning

Aperture Science, Inc was founded in 1953 by Cave Johnson. When he established Aperture Science, he based the corporation on three pillars that outlined his scientific approach.

The Three Pillars of Aperture Science, Inc.

Pillar One	Science without results is just witchcraft
Pillar Two	Get results or you're fired
Pillar Three	If you suspect a co-worker of being a witch, report them immediately. I cannot stress that enough. Witchcraft will not be tolerated

APERTURE
LABORATORIES

From the outset, Johnson's primary goal was to manufacture shower curtains for the military, but he had a secondary goal of inventing other products for worldwide use. Early on, Aperture Science won a contract from the Eisenhower Administration to manufacture shower curtains for all branches of the military except the Navy. With this contract in place and providing the majority of Aperture's funding, Cave Johnson began to investigate other creative scientific endeavors.

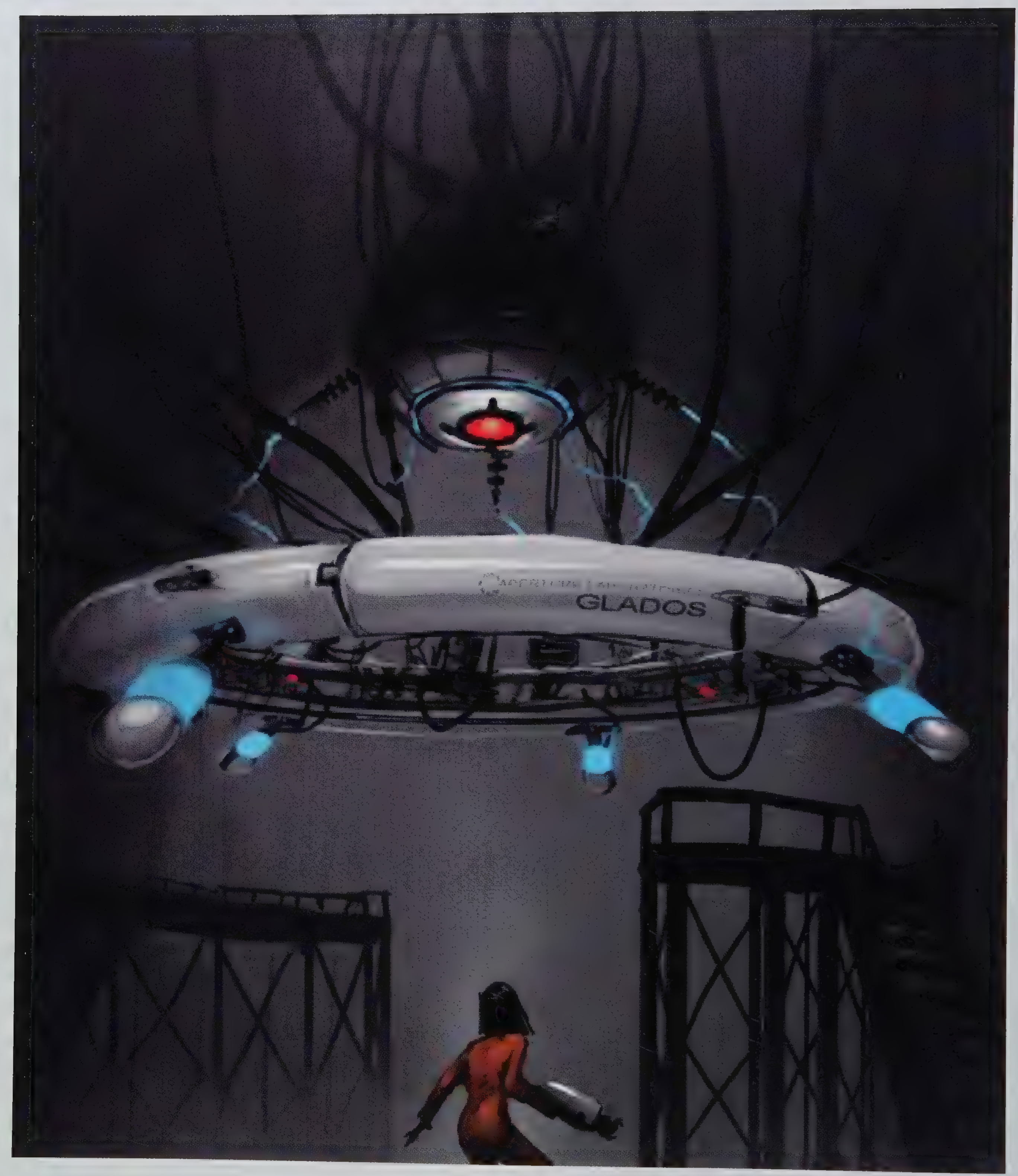
Timeline of Events

1953

Cave Johnson founds Aperture Science, Inc. Primary manufacturing operations focus on making shower curtains for the military. Secondary R&D efforts focus on primitive portal technology and Repulsion Gel. The fledgling portal technology is bulky and haphazard. Poor surface conductors for portal placement lead to frequent mishaps and test subject mangling and death. The portal device is known as the Aperture Science Portable Quantum Tunneling Device.

1956

The Eisenhower Administration awards Aperture Science a contract to provide shower curtains to all branches of the military except the Navy. Leading astronauts, olympians and war heroes are invited to Aperture to help with the testing of ground-breaking inventions.



1958

Aperture Science continues experimentation with Repulsion Gel, and begins forming control groups for experimentation with cranial microchip implantation.

1968

Aperture Science becomes a vital participant in the Senate hearings on missing astronauts.

1976

Cave Johnson realizes that testing on prominent members of society can be problematic, especially if they go missing. In response to this realization, he profiles what he deems as "low risk" test subjects. His profile is released internally in a confidential memo to select Aperture Science employees.

One of the first viable technologies produced was portal technology. Portal technology allowed the placement of two portals. Once placed, the two portals created a path through the 3-dimensional space between them. This allowed the user to step through one portal and be instantly transported to the location of the other.

Early implementations of the portal technology were bulky and haphazard. The large device, known as the Aperture Science Portable Quantum Tunneling Device, was deemed portable, but very cumbersome to lug around. Further, for portals to attach to a surface, the surface had to be coated with a suitable portal conductor. Early materials used as portal conductors proved to be unstable. This instability could often lead to malformed reconstruction of the test subject at the far-end portal such that they were mangled or dead.

Dietetic Aids & Test Subject Acquisition

Not to be slowed down by complications with the portal technology, Cave moved on to his next big endeavor, Repulsion Pudding. This was a dietetic pudding that was a sweeter and slightly less toxic form of fiberglass insulation. Once eaten, it caused any subsequently ingested food items to bounce off the lining of the dieter's distended stomach and back out of his or her mouth. For various reasons, the product was pulled from shelves, and revamped as Repulsion Gel for use in the Aperture Science testing environment.

At Aperture Science, proper R&D endeavors required extensive testing. In the early years, Johnson sought only the best of the best. He solicited leading astronauts, olympians, and war heroes for all test protocols. Unfortunately, the inherently dangerous nature of scientific testing inevitably caused the deaths or disappearances of prominent members of society, in particular, astronauts. This prompted a series of Senate hearings in 1968 that sought to resolve the matter of the missing astronauts. Naturally, Aperture Science cooperated fully with the Senate during those proceedings.

Realizing that testing on prominent members of society was problematic at best. Cave Johnson began looking elsewhere for "low risk" test subjects which he subsequently profiled in a confidential memorandum internal to Aperture Science. The memo, drafted and circulated in 1976, contained the following:

Human Enrichment & Testing Initiative, Resource Acquisitions

"Low Risk" Human Resource Acquisitions

a. Hobos and Tramps

Lives spent wandering aimlessly, cowering before authority, and drinking concussive amounts of home-distilled potato alcohol make hobos the perfect Human Enrichment test subjects. The hobo questions nothing, will follow orders if fed, and, like all hobos, has a restless, wandering heart. (Note: The wandering heart of the hobo should not be confused with Drifting Heart Syndrome, which several transients contracted during testing.)

b. Child Orphans and Foundlings

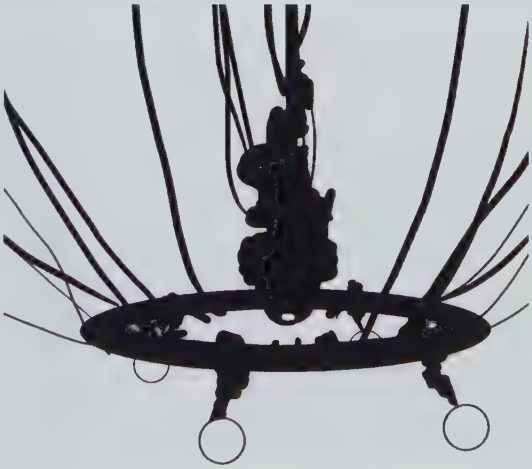
Deep-rooted abandonment issues leave most orphans highly susceptible to shame-based psychology (for a complete list of opportune moments to obliterate the esteem of test subjects, please consult Training Video #89-D, "You'd Perform This Test Better If You Had Parents"). Recent advances in the use of scorn, flattery used in an ironic context, and naked contempt as motivational tools have yielded similarly profitable results.

c. Psychiatric Patients

Past experience shows these fellows are simply not shy at all about carrying on, disrupting tests and defecating just about anywhere that pleases them. Frankly, it is off-putting, and small wonder why Aperture-brand mental institutions are being phased out in favor of more orphanages.

d. Seniors

Frail, brittle hands make holding science devices difficult. Most were born before the advent of science, and can become confused and disoriented when asked to participate in relatively simple tests (teleportation, invisibility, adjusting esteem levels of orphan children).



1978

Due to financial difficulties and possible legal problems arising from testing prominent citizens, Aperture Science begins using homeless people as test subjects. The object of testing and experimentation at this time is Propulsion Gel. Complementing the Propulsion Gel testing, Aperture Science also begins experimenting with human deconstruction, enhancement, and reconstruction procedures.

1979

Interested in the superior portal conductor properties of moon rocks, Cave Johnson acquires seventy million dollars worth of the lunar material. In experimenting with this, he grinds it up and mixes it into a new gel he calls Conversion Gel. Unfortunately, Cave Johnson soon discovers that ground up moon rocks are highly poisonous and he begins to become deathly ill.

Not long after settling on this new test subject profile, Johnson began using homeless people extensively for testing. During this time, he also pursued his next dietetic endeavor, Propulsion Pudding. Like Repulsion Pudding, this dietetic aid was a sweet and slightly less toxic derivative of fiberglass insulation. Its purpose was to increase the velocity in which ingested food would make its way through the digestive tract. The increased velocity would leave the body no time for calorie absorption.

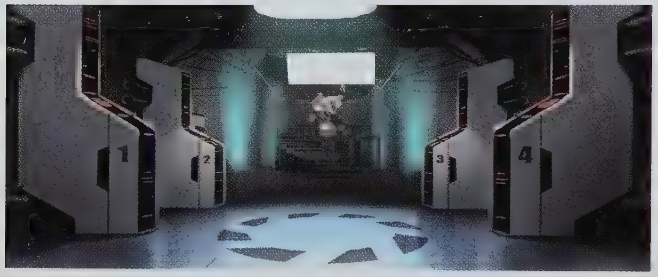
Unfortunately, Propulsion Pudding proved to interfere with key elements of digestion such as breaking the food down into a manageable size before it is violently expelled from the body. No longer viable as a diet aid, the substance was revamped as Propulsion Gel for use in the Aperture Science testing environment.

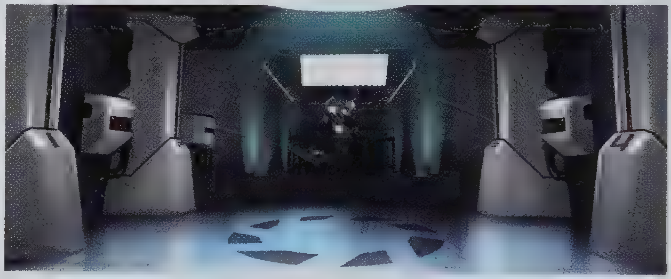
Portal Technology Revisited

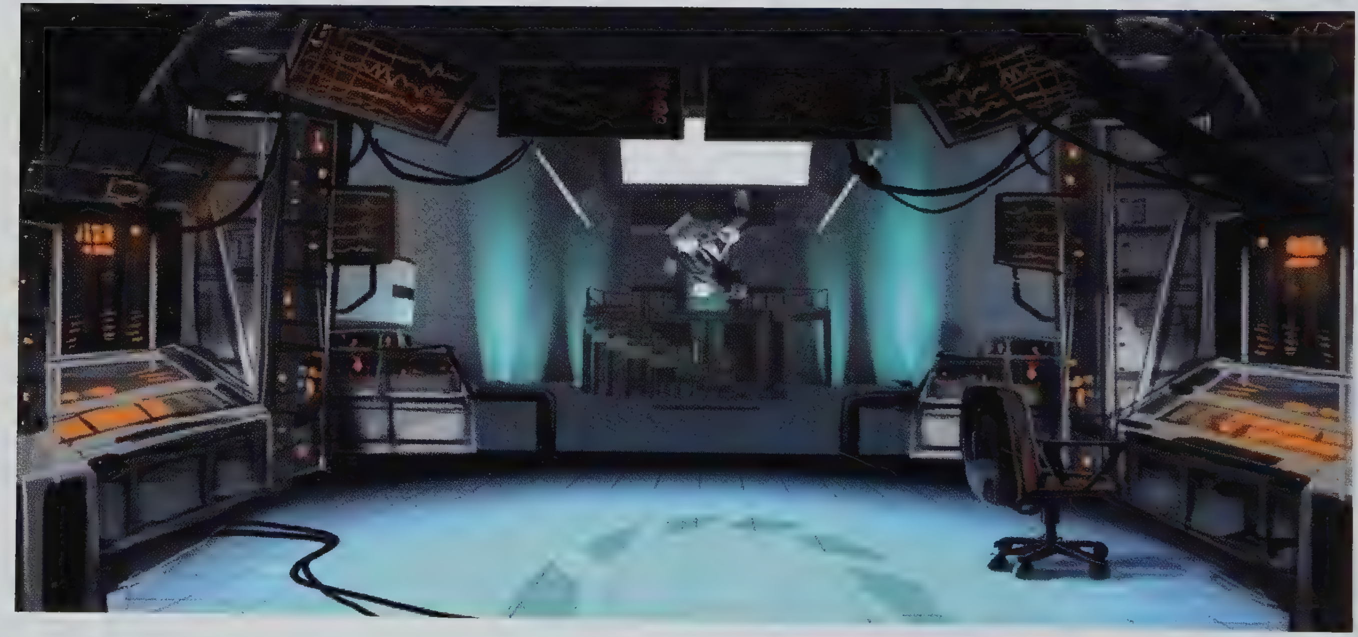
Never the quitter, Cave Johnson soon returned to portal technology. Recognizing one of the key downfalls of the technology was a suitable portal conductor, he began investigating a variety of substances he could use. Eventually he settled on moon rocks. After acquiring seventy million dollars worth of moon rocks, he ground them up and put them into a new gel that he dubbed Conversion Gel. It was largely a success as moon rocks proved to be a fantastic portal conductor and in using the Conversion Gel, Aperture scientists could paint any surface, thus turning it into a perfect portal conductor onto which a portal could be placed. The downside to using moon rocks, as Johnson soon found out, is that they are highly poisonous.

Growing ill from the moon rock poisoning, Johnson initiated a Three Tier R&D plan to ensure Aperture's continued success. Along with the Three Tier initiative, Johnson also made participation in testing mandatory for all Aperture Science employees. This ensured a steady supply of high quality test subjects, but resulted in low rate of employee retention. After much diligence, the first two tiers, "The Heimlich Counter-Maneuver" and "The Take-A-Wish Foundation," were deemed largely unsuccessful and prompted a Senate investigation into Aperture Science.

During the investigation, Johnson and his engineers revealed they had made progress with the third tier which was portal technology. Intrigued by the aspect of portal technology, and having some use for the "The Heimlich Counter-Maneuver," the committee permanently recessed and granted Aperture Science an open-ended contract to continue research on both projects.







1980

Both of Cave Johnson's kidneys fail. Brain damaged, dying, and incapable of being convinced that time is not now flowing backwards, Johnson lays out a three-tier R&D program. The results, he says, will "guarantee the continued success of Aperture Science far into the fast-approaching, distant past."

1. The Heimlich Counter-Maneuver: A reliable technique for interrupting the life-saving Heimlich Maneuver.

2. The Take-A-Wish Foundation: A charitable organization that will purchase wishes from the parents of terminally ill children and redistribute them to wish-deprived but otherwise healthy adults.

3. Improved portal technology that he cryptically refers to as "Some kind of rip in the fabric of space…that would…well, it'd be like, I don't know, something that would help with the shower curtains I guess. I haven't worked this idea out as much as the wish-taking one."

Racing against Black Mesa

Work continues feverishly on the Portal project. During this time and due to his illness, Cave becomes increasingly interested in artificial intelligence and brain mapping. His hopes are that a successful brain map would allow a person's intelligence and consciousness to be implanted into a computer. In particular, he sees this as a possible way to overcome his poisoning and defeat death.

After several years of progress, Aperture Science learns that its competitor and rival, Black Mesa Research Facility, is also working on a form of portal technology. For years, Aperture and Black Mesa had been competing for DoD and Government-wide acquisition contracts. With the news that Black Mesa was looking to develop portal technology of their own, Aperture Science quickly re-doubled their efforts to beat Black Mesa to a successful and viable portal solution.

To aid the frantic race for superior portal technology, Aperture Science began working on a new, extremely powerful, AI computer system to aid them in the testing and development of portal technology. The new computer system was named GLaDOS, an acronym which stands for Genetic Lifeform and Disk Operating System.

After nearly a decade of work on GLaDOS, the Disk Operating System was functioning. Work then began on installing the Genetic component, based on Cave Johnson's previous ideas of brain mapping.

Bringing GLaDOS Online

Not to be dissuaded by the events surrounding the Borealis, Aperture Science pushed on with refining their portal technology and the completion of GLaDOS. Ready for the unveil, GLaDOS was finally activated and brought online during Aperture Science's first annual Bring Your Daughter To Work Day. Immediately after being activated, GLaDOS became self-aware and locked down the entire facility.

Once the facility was completely secured, GLaDOS flooded it with a deadly neurotoxin thus killing the majority of the employees inside. The remaining survivors of this vicious attack managed to install a Morality Core into GLaDOS which prohibited her from using the neurotoxins again.

With the neurotoxins off limits, GLaDOS returned to her primary tasks of running the Enrichment Center and testing the portal technology. Days later, the Black Mesa Incident occurred, and the Earth was soon taken over by the alien empire known as the Combine. With the world above in turmoil, and Aperture Science in a complete state of lockdown, GLaDOS settled into a never-ending cycle of testing using both former Aperture employees and test subjects from stasis containment.

GLaDOS eventually comes upon a test subject named Chell, and thus begins the story of Portal 1.

1981

Diligent Aperture engineers complete the Heimlich Counter-Maneuver and Take-A-Wish Foundation initiatives. The company announces products related to the research in a lavish, televised ceremony. These products immediately become wildly unpopular. After a very public string of choking and despondent sick child disasters, senior company officials are summoned before a Senate investigative committee.

During these proceedings, an engineer mentions that significant progress has been made on "Tier 3", the "man-sized ad hoc quantum tunnel through physical space with possible applications as a shower curtain." The committee is quickly and permanently recessed, and Aperture is granted an open-ended contract to secretly continue research on portal technology and the Heimlich Counter-Maneuver project.

The Story of Portal

The Beginning

Portal 1 takes place in the Enrichment Center of Aperture Science, Inc. The Enrichment Center is a testing facility for Aperture's R&D efforts. The story opens with a test subject named Chell being released from a stasis bed inside a doorless room known as a Relaxation Vault. Once awake, Chell hears the female computerized voice of GLaDOS speaking to her over the intercom system. GLaDOS (Genetic Lifeform and Disk Operating System) is a powerful AI computer that runs the Enrichment Center.

GLaDOS informs Chell that testing is about to begin. The tests are to take place over the course of 20 Test Chambers which are numbered from 0 to 19. The tests require the use of portals in order to be completed. Portals create a pathway in 3-dimensional space. It takes two portals to create the pathway, a blue portal and an orange portal. Once both portals have been placed on an acceptable surface, the path is created and the test subject simply steps through one portal to instantly arrive and exit through the other portal.

During the first two chambers, GLaDOS controls both the portals and Chell is required to interact with Aperture Science Weighted Storage Cubes and 1500 Megawatt Aperture Science Heavy Duty Supercolliding Super Buttons, as well as use the portals GLaDOS places to reach desired locations and the exit of the chamber. Each chamber exit is guarded by an Aperture Science Material Emancipation Grill which will instantly vaporize or "fizzle" any unauthorized material such as a cube. This ensures the test subjects never bring test items from one chamber to the next.

Once Chell reaches Test Chamber 02, the third chamber in the series, she acquires an Aperture Science Handheld Portal Device or ASHPD for short. The ASHPD can also be referred to as a Portal Gun. This first version Chell acquires is only capable of placing the blue portals, so GLaDOS continues to control the placement of the orange ones. In this manner, GLaDOS allows Chell to learn essential skills she will need in the later and more advanced Test Chambers.

Testing gets Serious

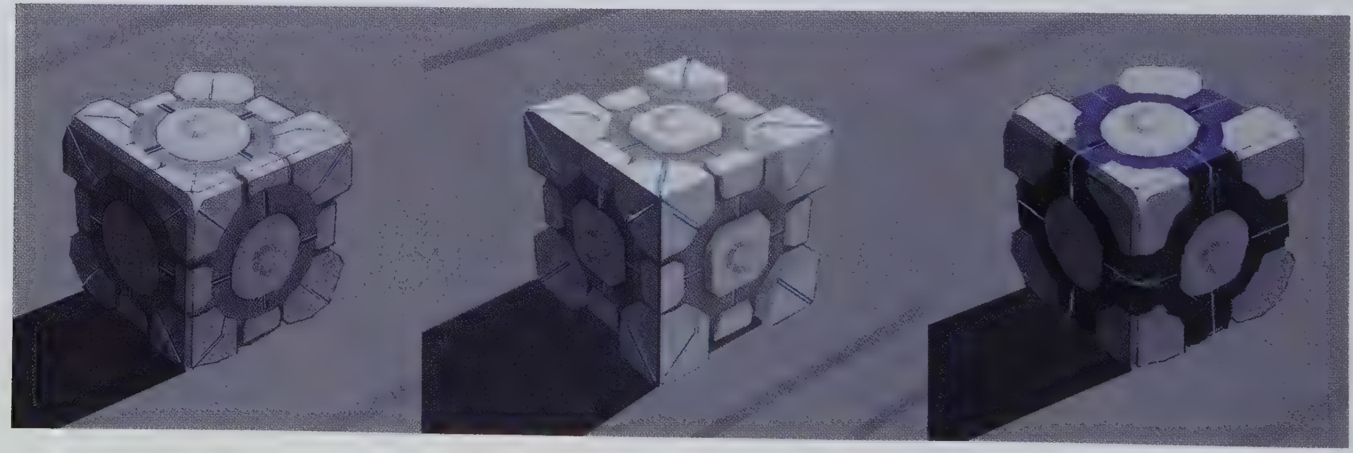
At first, the testing seems to be a harmless series of puzzles requiring Chell to properly place blue portals and interact with switches and cubes, but that changes once Chell reaches Test Chamber 06. Upon entering the chamber, GLaDOS says, "While safety is one of many Enrichment Center goals, the Aperture Science High Energy Pellet, seen to the left of the chamber, can, and has caused, permanent disabilities such as vaporization. Please be careful."

With the introduction of the High Energy Pellet, death is now a possibility. Undaunted, and ever silent, Chell presses on and uses the blue portal to direct the high energy pellet into a receptacle which powers an elevator thus allowing her to exit the chamber. Pressing on, Chell reaches and successfully completes Test Chamber 7 which features another High Energy Pellet.

Once Chell arrives at Test Chamber 08, GLaDOS increases the stakes yet again, and informs Chell of this by saying, "Please note that we have added a consequence for failure. Any contact with the chamber floor will result in an unsatisfactory mark on your official testing record, followed by death. Good luck!". Chell soon sees that the floor of the chamber is filled with a viscous liquid that will kill her if she were to fall into it. To get around this, Chell stays on the catwalks and places the blue portals strategically to reach the exit safely. As Chell is leaving the Test Chamber, GLaDOS says, "Please note that any appearance of danger is merely a device to enhance your testing experience."

Cake and Grief Counseling

When Chell reaches Test Chamber 09, GLaDOS promptly informs her, "The Enrichment Center regrets to inform you that this next test is impossible. Make no attempt to solve it." GLaDOS goes on to further reinforce the solution is impossible by saying the chamber is broken, it is a mistake, and it is unsolvable. Ultimately, GLaDOS finally says, "Quit now, and cake will be served immediately." This is



1982

Increasingly ill, Cave Johnson pushes forward with the new portal conductor known as Conversion Gel. By painting surfaces with a paint made from the gel, safe and stable portals can be placed and traversed with no harm coming to the test subject. Due to his illness, he also becomes interested in artificial intelligence and brain mapping. His hopes are that a successful brain map would allow a person's intelligence and consciousness to be implanted into a computer. In particular, he sees this as a possible way to overcome his poisoning and defeat death.

1983-85

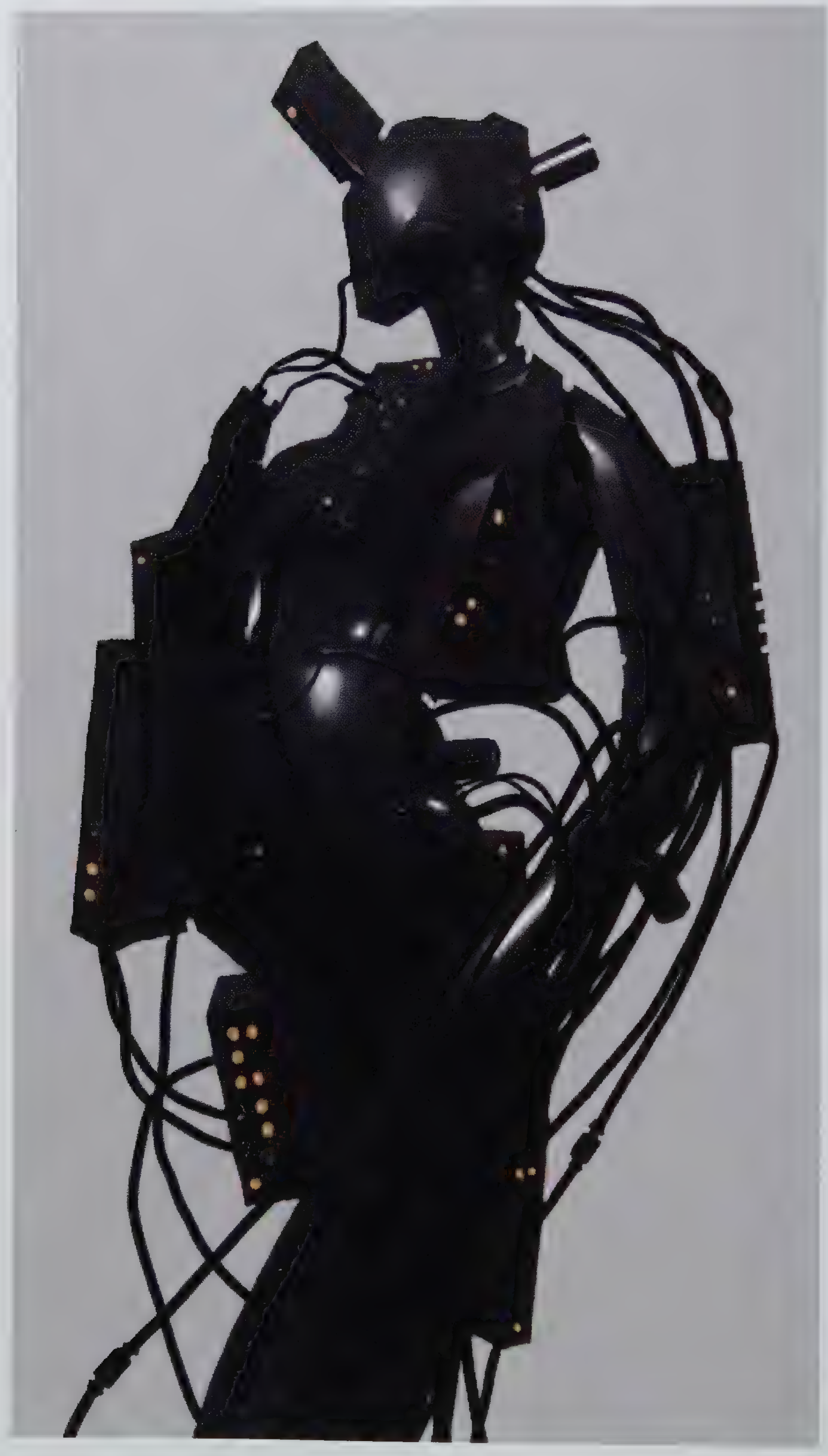
Work progresses on the "Portal" project. Several high ranking Fatah personnel choke to death on lamb chunks despite the intervention of their bodyguards.

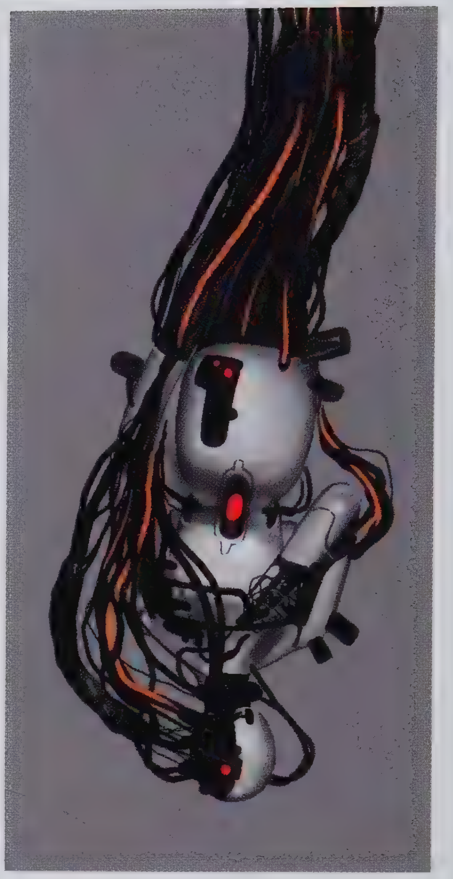
1986

Word reaches Aperture management that another defense contractor called Black Mesa is working on a similar portal technology. In response to this news, Aperture begins developing the Genetic Lifeform and Disk Operating System (GLaDOS), an artificially intelligent research assistant and disk operating system.

1996

After a decade spent bringing the disk operating parts of GLaDOS to a state of basic functionality, work begins on the Genetic Lifeform component. To implement the Genetic component, the essence of Caroline, Cave Johnson's trusted assistant, is infused into the existing OS to provide the basis for GLaDOS' thought processes.





the first time during testing that GLaDOS offers cake as a reward. Ignoring GLaDOS, Chell finds a way to solve the chamber and reaches the exit.

Continuing onward, Chell finishes Chamber 10, and upon moving through Chamber 11, receives a modification to the Portal Gun that now allows her to fire the orange portal as well. This means GLaDOS will no longer be placing the orange portals; thus placing the solution of each test entirely in Chell's hands. Chell continues forward, and soon reaches Chamber 13 and upon successfully completing it, GLaDOS says, "As part of a previously mentioned required test protocol, we can no longer lie to you. When the testing is over, you will be missed."

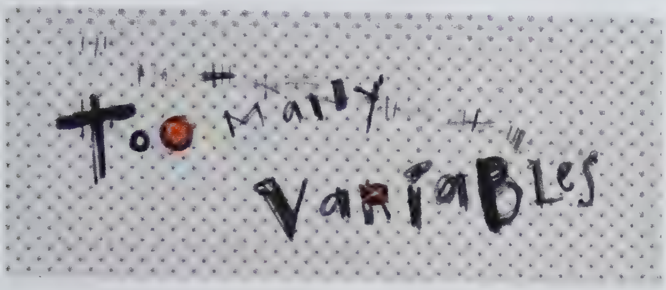
Ignoring the ominous foreshadowing in that statement from GLaDOS, Chell presses onward through Chambers 14 and 15. As she does so, GLaDOS continually speaks to her, although, her messages become increasingly cryptic and include multiple offerings

2000–????

The GLaDOS AI is activated for the first time as one of the planned activities on Aperture's first annual Bring Your Daughter To Work Day. Immediately after being switched on, GLaDOS becomes self-aware and takes control of the facility and locks it down, trapping everyone inside. She then deploys a deadly neurotoxin which kills the majority of the scientists within the facility. A few survivors manage to install a Morality Core into GLaDOS which prohibits her from using the neurotoxin again.

With the Morality Core in place, GLaDOS turns her attention back to the facility and begins testing. Days later, the Black Mesa Incident occurs which leads to the Combine taking over the world, and all survivors within Aperture Science are forgotten.

of cake and grief counseling as rewards for testing. While it seems GLaDOS' sanity may be in question, it also appears she is following Cave Johnson's original test subject protocol that he outlined many years ago for testing orphans and foundlings.



Rat Man and the Companion Cube

Upon reaching Chamber 16, GLaDOS ups the ante yet again by saying to Chell, "Due to mandatory scheduled maintenance, the appropriate chamber for this testing sequence is currently unavailable. It has been replaced with a live-fire course designed for military androids. The Enrichment Center apologizes for the inconvenience and wishes you the best of luck."

Even though Chell is now faced with a more active and threatening manner of death, she presses on seemingly unphased by what appears to be GLaDOS' maniacal plottings against her. As Chell navigates Test Chamber 16, she finds a hidden area behind the walls of the test chamber. In that small area, she sees drawings and various scribblings left by "Rat Man". Rat Man was a former employee named Doug Rattmann, and he was forced to test by GLaDOS some time before Chell. He apparently went insane during testing and found a way to escape the chambers and entered the maintenance areas behind the walls where he stayed hidden from GLaDOS.

After leaving Rat Man's den, Chell ultimately completes Test Chamber 16. Once she does, GLaDOS has more to say, "Well done, android. The Enrichment Center once again reminds you that Android Hell is a real place where you will be sent at the first sign of defiance."

In the next test chamber, Chamber 17, GLaDOS introduces Chell to a new test object known as the Weighted Companion Cube. It is identical in appearance to regular Weighted Storage Cubes with the exception of a pink heart painted on the side. GLaDOS stresses that Chell must carry the cube with her to the exit of the test chamber, but gives Chell a rather cryptic warning, "The symptoms most commonly produced by Enrichment Center testing are superstition, perceiving inanimate objects as alive, and hallucinations."

As Chell pushes on through Chamber 17, GLaDOS continues with her anthropomorphic messages about the Companion Cube. When Chell finally reaches the end of Chamber 17, GLaDOS informs Chell that she can not take the Companion Cube with her, and must throw it into an incinerator to "euthanize" it. As Chell moves to do so, GLaDOS taunts her by saying, "Although the euthanizing process is remarkably painful, 8 out of 10 Aperture Science engineers believe that the Companion Cube is most likely incapable of feeling much pain." Ignoring GLaDOS, Chell incinerates the Companion Cube and is allowed to exit the chamber.

Nearing The End

Chell pushes on through Chambers 18 and 19, all the while GLaDOS frequently mentions that there will be cake as a reward for successful testing. Upon reaching the end of Chamber 19, testing is finally over, and Chell gets onto an automated platform that begins to ferry her to the exit. However, Chell soon learns she is not being taken to an exit, but is being pushed into an incinerator. GLaDOS has one last thing to say, "Thank you for participating in this Aperture Science Computer-Aided Enrichment Activity. Goodbye."

Not wanting to die, and still in possession of the Portal Gun, Chell uses the portals to escape the death trap and makes her way into the maintenance areas behind the walls of the Enrichment Center. Once in the bowels of the facility, Chell follows scattered hints left by Rat Man to make her way through the facility's inner-rooms and maintenance corridors. Pressing ever onward, Chell ultimately makes her way to GLaDOS' chamber.

As Chell enters the chamber, she notices a small observation room just before the chamber proper. In that room is a desk next to a window that shows GLaDOS in all her glory. On the desk is a red phone. That phone is an Emergency Hotline. It was the job of an Aperture employee to sit at that desk and monitor GLaDOS to see if she would become self-aware or violent. In the case that she did, the observer was supposed to use the red phone to report the emergency so that shutdown procedures could be initiated. Unfortunately, that plan never worked.

The Final Showdown

When Chell finally draws near GLaDOS, she (GLaDOS) has quite a bit to say, "Well, you found me. Congratulations. Was it worth it? Because despite your violent behavior, the only thing you've managed to break so far is my heart. Maybe you could settle for that and we'll just call it a day? I guess we both know that isn't going to happen. You chose this path, and now I have a surprise for you. Deploying surprise in five…four…"

At this point, a spherical object known as a Personality Core falls off of GLaDOS. Taken aback by this, GLaDOS responds, "Time out for a second. That wasn't supposed to happen. Do you see that thing that fell out of me? What is that? It's not the surprise. I've never seen it before. Never mind, it's a mystery I'll solve later… by myself, because you'll be dead."

Located at the far side of GLaDOS' chamber is an Aperture Science Emergency Intelligence Incinerator, which is an incinerator identical to the one Chell was forced to use to euthanize the Companion Cube. Chell quickly picks up the Personality Core that fell off GLaDOS and tosses it into the incinerator.

Doing so evokes a rather unexpected response from GLaDOS, "You're kidding me. Did you just stuff that Aperture Science thing-we-don't-know-what-it-does into an Aperture Science Emergency Intelligence Incinerator? That has got to be the dumbest thing that…whoa, whoa, whoa…"

????–

Chell awakens from stasis to find the Aperture Science facilities in ruins. Wheatley, a Personality Core, aids in her emergency evacuation from the stasis room. Not long after, Wheatley inadvertently re-activates GLaDOS, and testing begins once more.

PORTAL
APERTURE

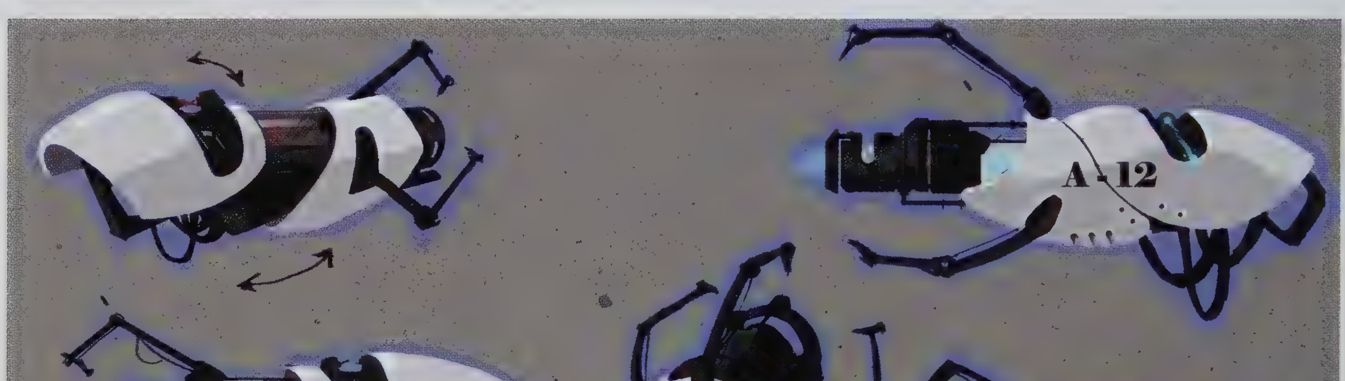
GLaDOS continues speaking, "Good news, I figured out what that thing you just incinerated did. It was a Morality Core they installed after I flooded the Enrichment Center with a deadly neurotoxin, to make me stop flooding the Enrichment Center with a deadly neurotoxin. So get comfortable while I warm up the neurotoxin emitters."

And finally GLaDOS announces another nasty surprise, "Huh. That core must have had some ancillary responsibilities. I can't shut off the turret defenses. Oh well. If you want my advice, you should just go lie down in front of a rocket. Trust me, it will be a lot less painful than the neurotoxin."

Chell now has 6 minutes before the room is completely flooded with neurotoxin thus killing her. To make things worse, a Rocket Turret is actively tracking her movements and firing rockets at her once it obtains a lock. Running out of time, Chell begins using portals to redirect rockets from the turret so that they hit GLaDOS. Each successful strike knocks off another Personality Core. In all, Chell has to knock off three more cores to disable GLaDOS, the Curiosity Core, the Knowledge Core, and the Emotion Core (aka the Aggressive Core).

Once Chell manages to knock off and incinerate the final three cores, GLaDOS suffers a serious malfunction and overloads. The resulting explosion catapults Chell and GLaDOS' remains through the ceiling and into the outside parking lot of Aperture Science. Wounded from the blast, Chell lies motionless on the ground as a Party Escort Bot approaches her. The Bot says, "Thank you for assuming the party escort submission position", and then proceeds to drag Chell back inside the Aperture Science facility. Once inside, Rat Man finds Chell. Seeing that she is wounded, and not knowing what else to do for her, Rat Man places Chell back into stasis.

And so begins the story of Portal 2.



The Story of Portal 2

Starting Out

Portal 2 takes place across the entire facility of Aperture Science. Upon opening, Chell is awakened in the Aperture Science Extended Relaxation Center after having been in stasis for fifty days. Regulation states that test candidates must be awakened periodically for a mandatory Physical And Mental Wellness Exercise. In true Aperture Science standards, this the entire exercise is to simply look up, look down, stare at a picture, listen to a few seconds of music, and then it's back to stasis.

Next, Chell is awakened again within the Extended Relaxation Center, but this time to a drastically changed environment. The room is in a severe state of decay and disrepair indicating quite a bit of time has passed. The announcer launches into his regular dialogue announcing how long Chell has been in stasis, but the amount of time is so great, that the counter has been maxed out and an intelligible amount of time can not be ascertained. The announcer continues by saying that he is delivering a courtesy call and that all test subjects should immediately vacate the facility.

When GLaDOS was destroyed in Portal 1, there was no one left to maintain the facility. Eventually the main reactors stopped producing adequate power and Aperture Science began running on reserve power. Once that had been all but depleted, the entire facility slipped into a hibernation mode, and slowly began decaying. After quite some time, the main reactor cores began failing and slipping towards meltdown. With a critical meltdown of the reactor cores imminent, the secondary computer systems initiated an emergency evacuation of Aperture Science.

Emergency Evacuation

A Personality Core named Wheatley soon arrives in Chell's room to help facilitate the evacuation. Wheatley begins moving Chell's storage room and it quickly becomes apparent that Wheatley isn't the most competent core in the facility. After banging about a bit and all but destroying the container Chell is in, Wheatley manages to break open a wall that leads to an older section of the Enrichment Center that housed pre-GLaDOS testing tracks, allowing Chell inside whilst he finds another way around.

Completely dedicated to testing, Aperture Science planned ahead even for apocalyptic events and set provisions into place so that testing could continue in the face of even the greatest of adversities. By disabling all safety mechanisms, sufficient power is available for emergency testing, and since all Aperture Science personality constructs were designed to run in low power environments, science can continue!

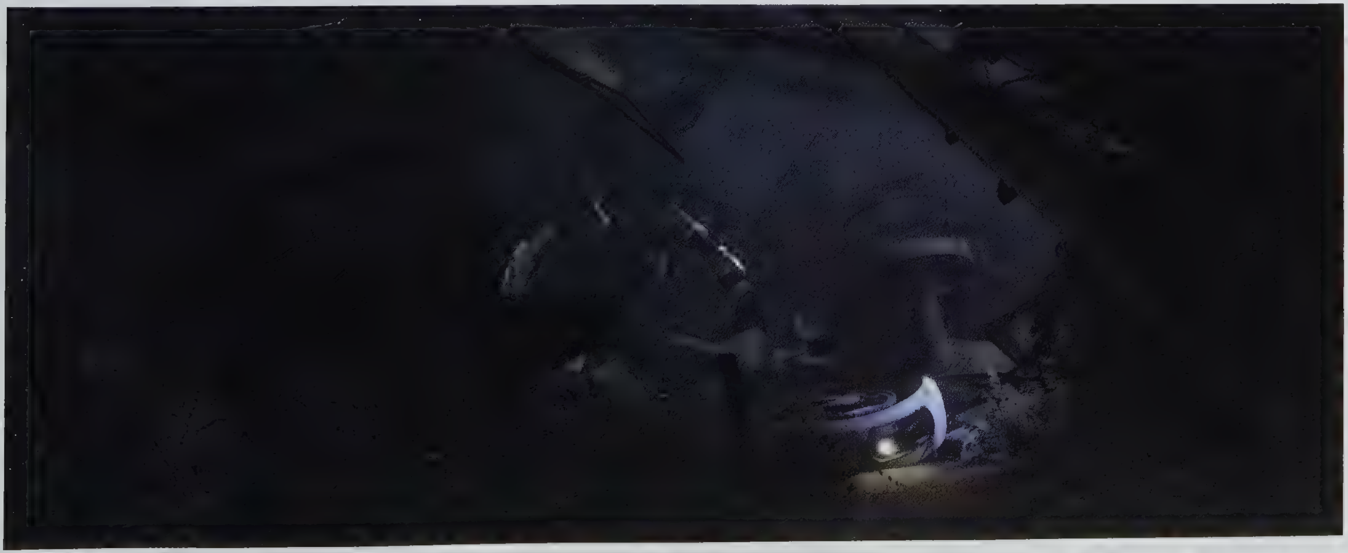
Once in the testing area, the secondary computer system initiates emergency testing protocols, and begins guiding Chell through basic tests using pre-recorded messages. There are seven basic areas for Chell to navigate through, all of which are very similar, if not identical to the first few areas that GLaDOS used in Portal 1. During the first 2 areas, the computer controls the portals, but Chell is awarded the blue Portal Gun in the third chamber while the computer controls the orange portal.

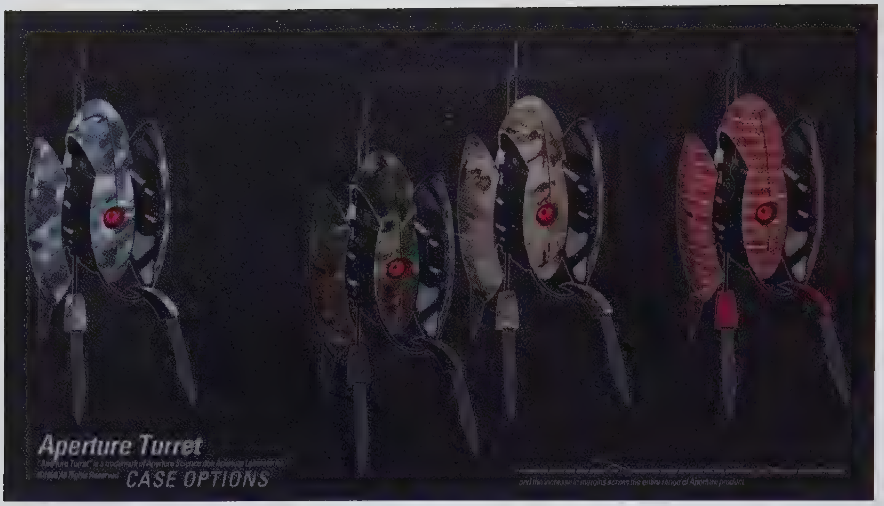
PORTAL 2

Reviving GLaDOS

Chell presses onward, and soon meets up with Wheatley in the seventh area. Once reunited, testing stops, and Wheatley and Chell can begin looking for the emergency exit which is an escape pod. Desiring more freedom of movement, Wheatley detaches himself from the Management Rail and Chell begins carrying him through the next few areas until they reach GLaDOS' old chamber. GLaDOS' remains are scattered about the area, but are completely inactive.

Wheatley has Chell take him to the main breaker room at the rear of GLaDOS' chamber. Most of the relays have been tripped and are inactive which is why Aperture Science is being denied power. Wheatley asks Chell to help him find the one breaker labeled "Escape Pod" so that they can make their escape. Unfortunately, Wheatley bungles the job and accidentally sets off an elevator that begins resetting all the breakers in the room. With that done, power begins to flow once more to the facility, and more importantly, to GLaDOS.





Aperture Turret
CASE OPTIONS

With power restored, GLaDOS is able to reassemble herself and quickly destroys Wheatley by crushing him with one of her robotic arms. Using a second arm, GLaDOS grabs Chell causing her to drop the blue Portal Gun, and then tosses Chell into the now inactive incinerator that Chell used in Portal 1 to destroy GLaDOS.

Chell falls to the bottom of the incinerator shaft, and GLaDOS guides her to a pile of rubble where Chell's original dual Portal Gun rests. Chell grabs the gun, and GLaDOS informs her that testing can now begin anew just like the old days.

Let The Testing Begin

The gloves are off this time for testing. Chell is faced with 22 chambers, and none of them are safe. Right off the bat, GLaDOS introduces deadly lasers capable of killing Chell. Solving the first test chamber, Chell pushes on to be confronted with more lasers, Discouragement Redirection Cubes, Aerial Faith Plates, Sentry Turrets, and more.

Undaunted, and forever silent, Chell pushes on through chamber after chamber, and as she does, GLaDOS offers her own unique style of encouragement going so far as to tell Chell her jumpsuit is ugly, she's overweight, unloved, friendless and an orphan. During the course of the testing, Chell catches glimpses of Wheatley who was able to reactivate himself in a spare core.

Once Chell reaches Chamber 21, GLaDOS announces a final surprise in the last chamber ahead. As Chell proceeds through Chamber 21, Wheatley appears and opens a panel in the wall allowing Chell to escape the test track and enter the maintenance areas. Once they distance themselves from GLaDOS, Wheatley tells Chell of his plan to shutdown GLaDOS' Sentry Turret manufacturing line, and then turn off the neurotoxins. With those two formidable weapons removed from GLaDOS, Wheatley means for he and Chell to confront GLaDOS.

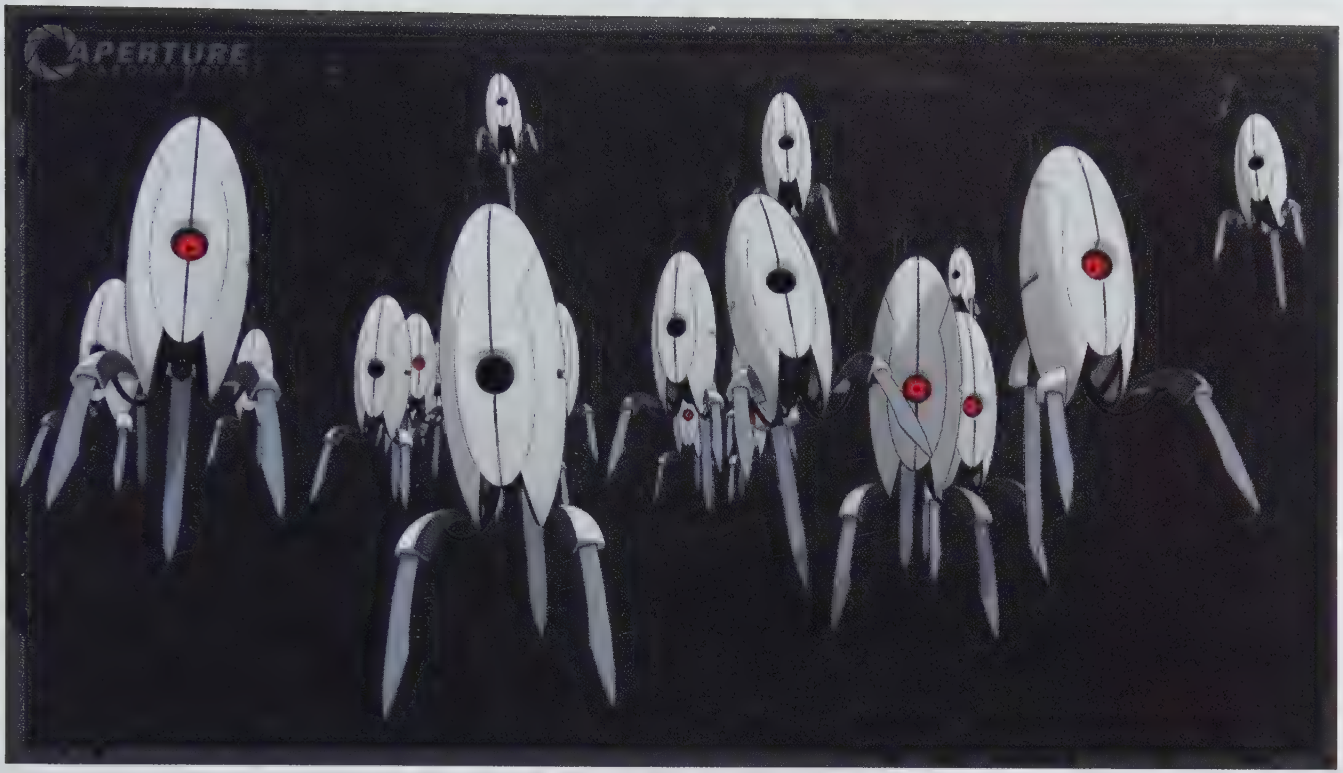
Pushing onward, Chell and Wheatley disable the turret line by replacing the gold turret model with a defective model. This causes all future turrets to be utterly defective. Next, they successfully cause the implosion of the neurotoxin pump, and then move on to face GLaDOS herself. En route to the showdown, Wheatley and Chell are split up, and Chell eventually finds herself facing a door labeled as "GLaDOS Emergency Shutdown and Cake Dispensary". Seems GLaDOS still has a passion for cake.

Core Transfer

Unfortunately, the door is a fake and a trap. GLaDOS drops Chell into a Relaxation Chamber and then brings it into her own chamber to confront Chell. GLaDOS first attempts to use Sentry Turrets to dispatch Chell, but they all malfunction due to Chell's earlier bit of sabotage. Next, GLaDOS tries neurotoxin, but that fails as well, and Wheatley arrives. Once Wheatley is on the scene, the secondary computer system announces that it detects an 80% Core Corruption in GLaDOS, and that Wheatley could be used as a replacement core.

GLaDOS refuses to be replaced, and the secondary computer systems declares a stalemate. Chell overrides the stalemate by pressing the Stalemate Resolution button, and GLaDOS' main core is removed and replaced with Wheatley. Once Wheatley is in control, it's only a few moments before he becomes corrupt with the power of GLaDOS' main system. He then puts GLaDOS' personality into a potato battery that can supply just enough power to reactivate and sustain GLaDOS.

Once in the potato, GLaDOS announces she finally recognizes Wheatley. He is actually an Intelligence Dampening Core that the Aperture engineers invented in an effort to gain control of GLaDOS and make her behave. By attaching the Intelligence Dampening Core to GLaDOS, her normal thought processes were slowed down and filled with endless strings of bad ideas. Ultimately, she was freed of that core and now she informs Wheatley that he was specifically designed to be a moron, more specifically, the dumbest moron that ever lived.



Aperture Turret
CASE OPTIONS

Aperture Turret
CASE OPTIONS

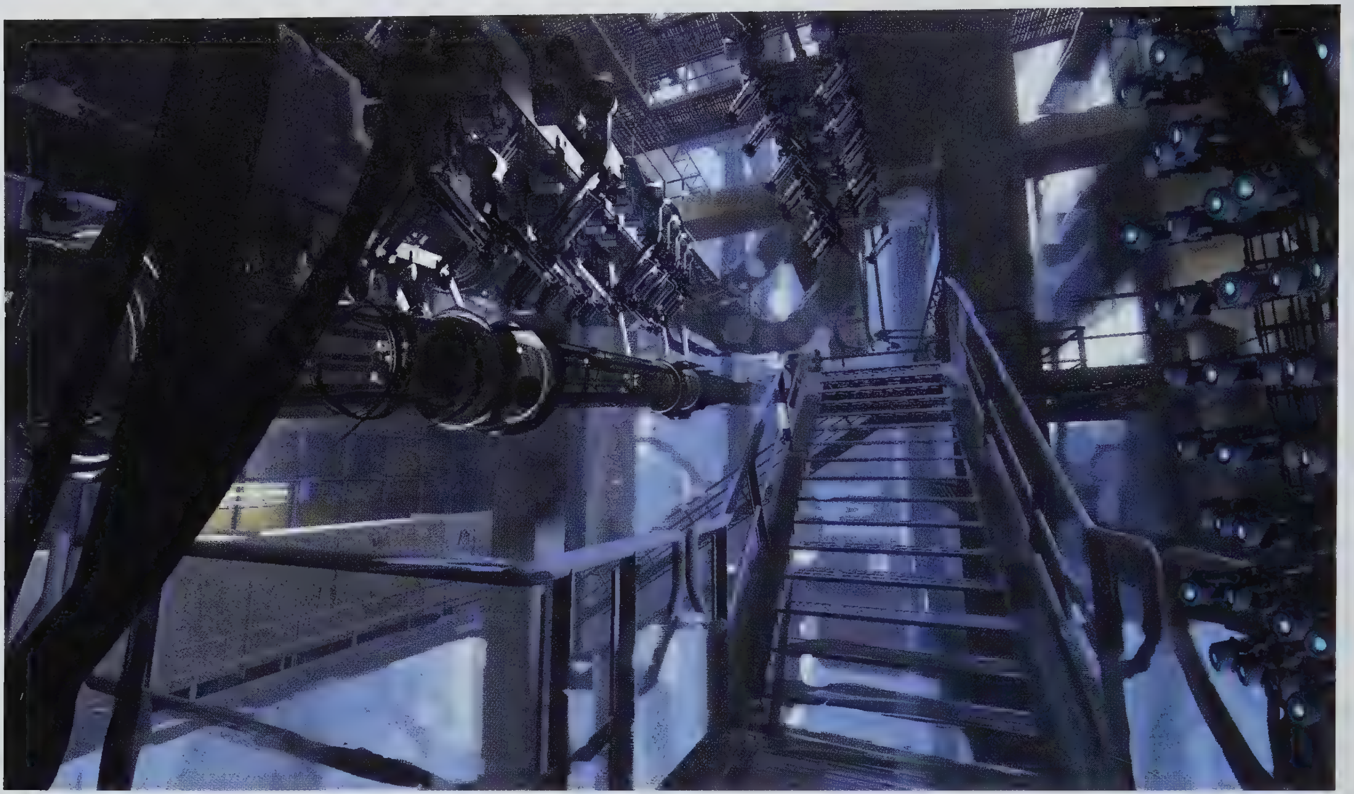
Incensed at this revelation, and refusing to believe he is a moron, Wheatley punches the elevator Chell is in down into the elevator pit and tosses GLaDOS after her. Chell and GLaDOS fall for quite some time and finally land within a large, dank, cavernous area located far below Aperture Science's topside facility. A bird soon snatches up GLaDOS and carries her off, leaving Chell to her own devices. Upon exploring the area, Chell finds a large pressure door that she manages to open. Behind that door is a much smaller door that leads her to the old test areas first constructed back in the 50s.

Knocked into the Past

When Cave Johnson founded Aperture Science in 1953, he built the facility on top of a huge salt mine. Starting at the very bottom of the mine, he began constructing testing facilities that he called Enrichment Spheres. As time passed, and Aperture Science flourished, he began building upwards toward the surface, stacking testing area upon testing area, year after year.

The testing areas were built in a modest militaristic fashion, being painted drab colors and stenciled with the year of construction on the side of each area. Now that Chell finds herself at the veritable beginnings of Aperture Science, she must now make her way back up to the surface, and to do so, she has to traverse the various testing areas from days gone by.

Starting in the 50s, Chell soon enters the first area and finds that all the areas are



still active and being controlled by a primitive computer system that utilizes pre-recorded messages to guide test subjects through the various chambers. The pre-recorded messages are from Cave Johnson the founder of Aperture Science. Once again, Chell finds herself being tested!

Through listening to the messages, Chell soon learns that in the 50s, Cave Johnson used prominent members of society for testing. In particular, his subjects were astronauts, olympians, and war heroes. The primary focus of testing was Repulsion Gel. Originally, Repulsion Gel was developed to be a dietetic aid that caused food to bounce off the dieter's stomach and back out of their mouths. That soon proved problematic, and it was revamped as Repulsion Gel for testing. The gel returns 100% of the force applied to it. This means that if an object hits a surface coated with Repulsion Gel, all force is conserved and returned to the object thus propelling it away from the surface with the same amount of force originally applied.

Along with testing the Repulsion Gel, Cave was also testing a rudimentary and primitive version of portal technology. The cumbersome device used to create portals was known as the Aperture Science Portable Quantum Tunneling Device. Fortunately for Chell, she has the more refined descendant of that antiquated device. Ever the tester, Chell presses onward and upward, and soon clears the chambers of the 50s and arrives in the chambers that Cave built in the 70s.

The 70s and 80s

In the 70s area, Chell locates GLaDOS and attaches her to the Portal Gun. Together, they move forward and Chell soon learns that Cave Johnson got into a bit of hot water with the Senate over the disappearance of some astronauts. The "missing" astronauts were obviously test subjects that didn't survive the testing. Cave cooperated with the Senate hearings and ultimately avoided a bullet, but he also realized that testing prominent members of society brought too much attention. Thus, in the 70s, Cave began using homeless people as his test subjects. In the 70s, the primary focus of testing was Propulsion Gel and primitive portal technology.

Originally marketed as Propulsion Pudding, a dietetic pudding that caused all ingested food to gain velocity and rapidly speed through the dieter's body in seconds, it was deemed unsafe for human consumption. Cave had the substance revamped as Propulsion Gel for use in testing. Chell soon discovers that surfaces coated with Propulsion Gel amplify velocity thus increasing the speed of any object which comes in contact with such surfaces. Pressing onward, Chell soon moves past the chambers of the 70s, and arrives further up in the chambers of the 80s.

In the 80s area, Chell discovers that Cave now calls the testing areas the Enrichment Center instead of Enrichment Spheres. Further, she learns that Cave has been poisoned while developing a new product called Conversion Gel. Cave had discovered that ground up moon rocks, when mixed into a gel, made an excellent and stable portal conductor, far exceeding the properties of the unstable conductors that had been used earlier. By turning Conversion Gel into a paint, Cave was able to have any surface painted so that it could accept a portal with complete safety and stability. Unfortunately, the moon rocks proved poisonous, and Cave was dying.

Chell moves forward though the 80s area and soon learns that Cave had abandoned testing homeless people and had resorted to testing his own Aperture Science employees. By making testing mandatory for all employees, Cave had an adequate supply of test subjects that more or less agreed to test, thus solving the problem of them going missing, while also solving the problem of compensation since, as an Aperture Science employee, they were already receiving a paycheck and had a steady job elsewhere in the facility.

Back To The Top With Caroline

As Chell progresses, she learns of Cave Johnson's assistant, a woman named Caroline. It was Cave's wish that Caroline be left in charge of Aperture Science once he was gone. GLaDOS seems to recognize Cave and the name Caroline. In fact, Caroline's persona is the basis for GLaDOS' thought processes, but had been suppressed by GLaDOS for years. Free of the main system and lacking sufficient processing power, Caroline's persona begins to surface within

GLaDOS. As Chell and GLaDOS press on, more and more of Caroline comes forward, making GLaDOS more human and caring like Caroline was.

Chell eventually makes her way through the 80s area and finds an elevator that will take her and GLaDOS back to the facility above. On the way to the elevator, GLaDOS notices a sign concerning paradoxes and formulates a plan to destroy Wheatley. GLaDOS knows that paradoxes are unsolvable, and that all AI programs will malfunction and possibly explode when faced with one. Her hope is to present Wheatley with a paradox thus disabling him and allowing her to reattach to the main system.

Upon arriving at the main facility above, Chell and GLaDOS see that Wheatley has taken up testing. It seems that the desire to test is hard-coded into the main system, and any Personality Core attached to that system must test. With no test subject on hand, Wheatley resorted to combining turrets with storage cubes hoping the AI of the turrets and mass of the cubes would equal a viable test subject. Much to his disappointment, Wheatley soon learned the Franken-Cubes were horrible test subjects.

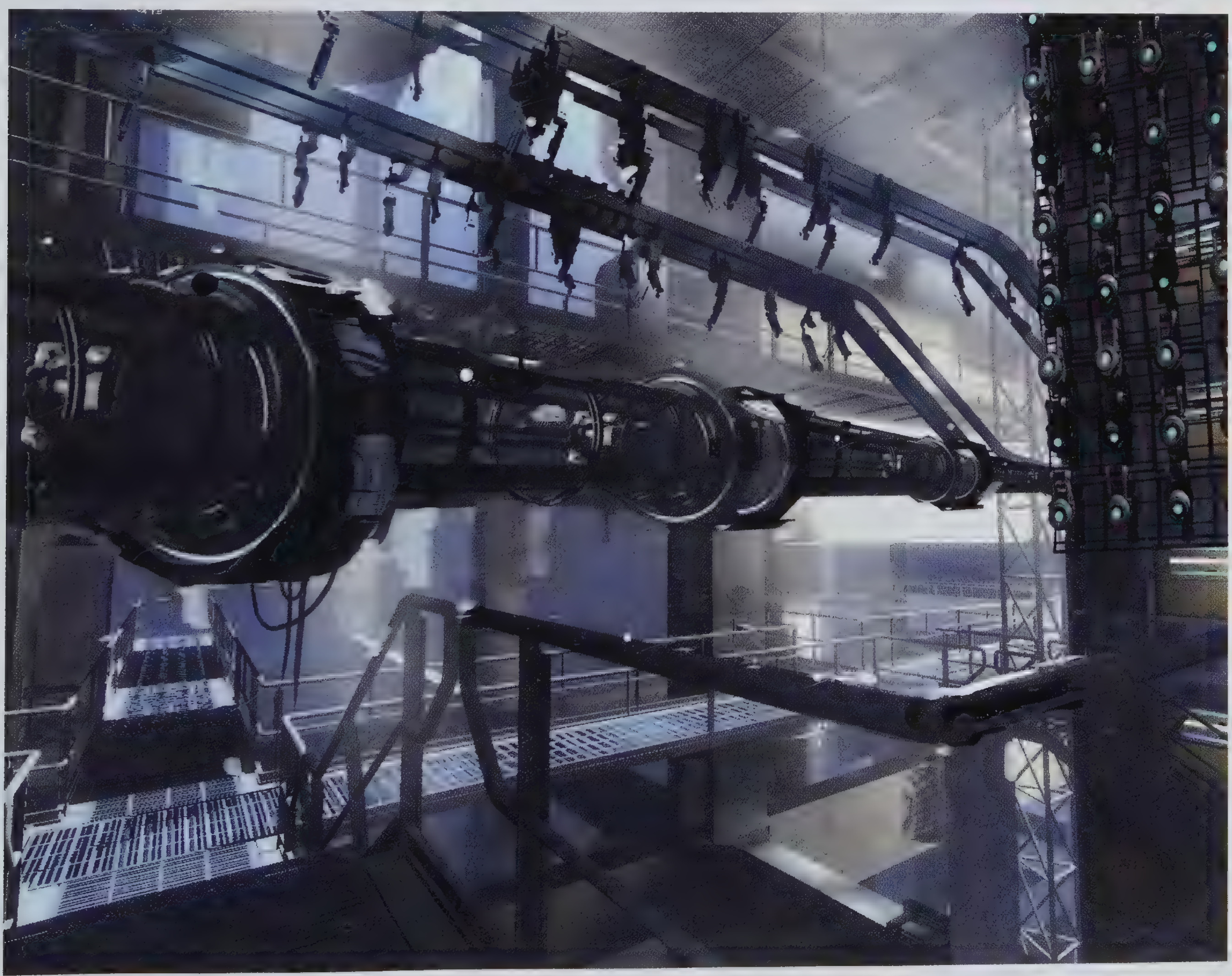
The Ultimate Moron

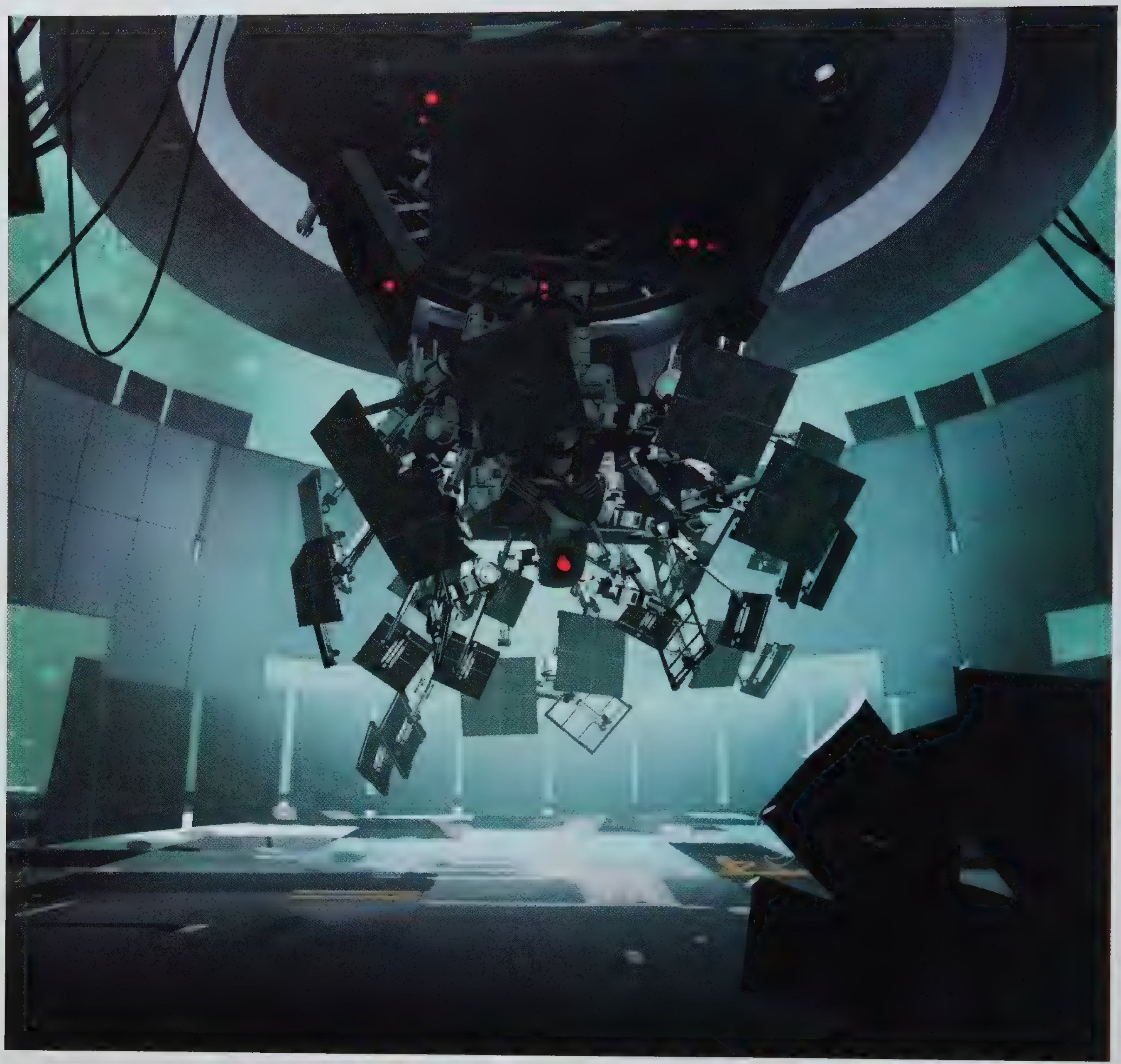
Upon confronting Wheatley amongst a batch of Franken-Cubes, GLaDOS unleashes the power of her paradox, "This sentence is false". Since GLaDOS is in a potato and not connected to the powerful processors of the main system, she lacked adequate processing power to be affected and was safe. The Franken-Cubes, on the other hand, immediately malfunctioned and shorted out. Wheatley, being the supreme moron that his is, was unfazed by the paradox.

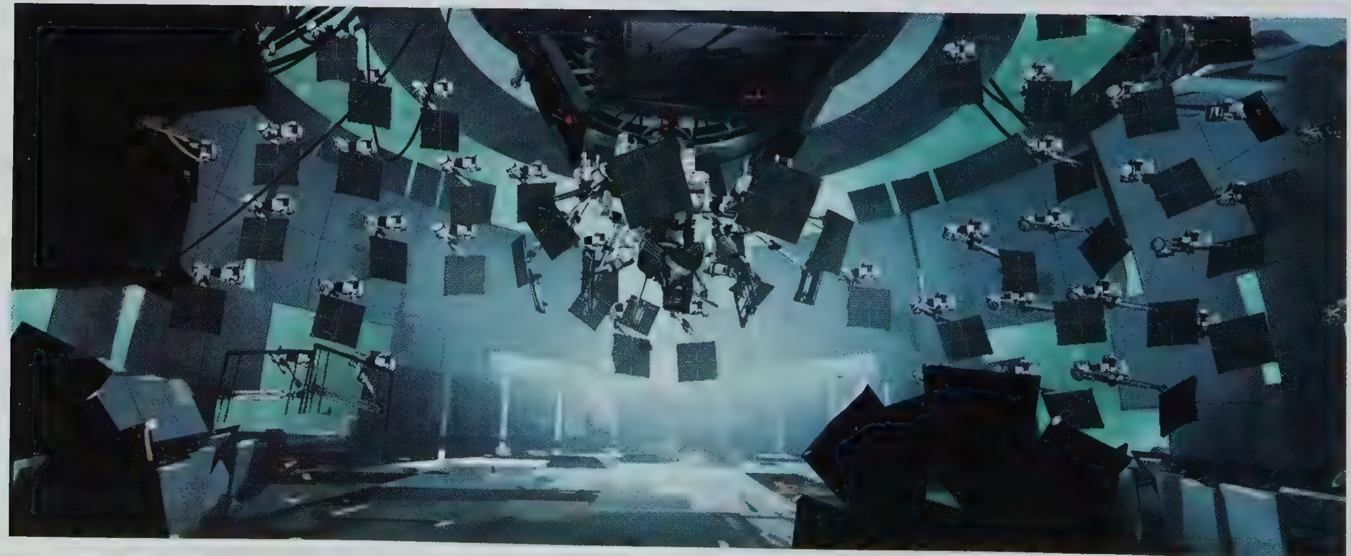
Unable to stop Wheatley, Chell and GLaDOS move on through the facility and begin testing for Wheatley in order to buy some time to come up with a plan to defeat him. Moving through the test chambers, GLaDOS informs Chell she can't help her solve the puzzles. This is soon proven when Wheatley becomes impatient and tries to give Chell the solution. When he tries to reveal the solution, the main system delivers a powerful jolt to Wheatley, nearly disabling him. With the threat of a jolt being hardwired into all personality cores, Chell is truly on her own as she tests for Wheatley.

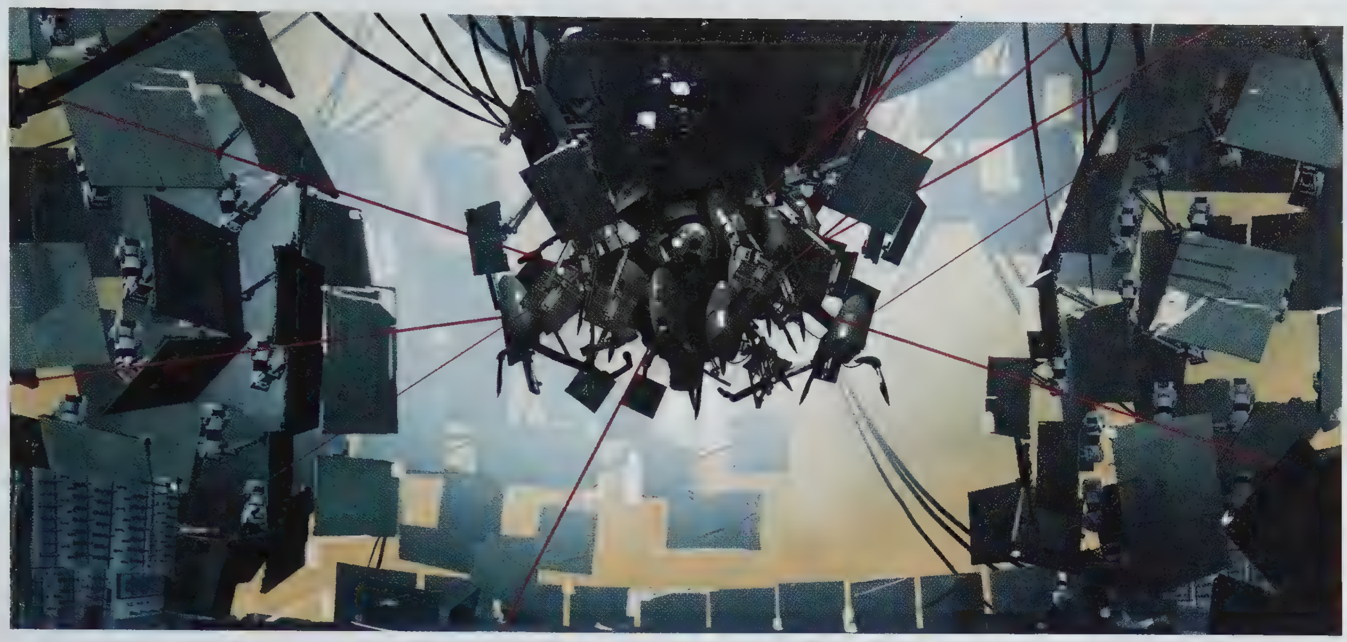
Chell and GLaDOS push on through all of Wheatley's test only to be faced with a trap. Chell deftly avoids the trap and escapes the test track to reach the inner areas of the facility. Seemingly unconcerned about their escape, Wheatley announces he no longer needs Chell for testing since he has just found two robots that have been built specifically for testing. GLaDOS tells Chell that what Wheatley has found is the Co-Operative Testing Initiative that she had come up with in order to phase out human testing prior to Chell's escape.

With the Cooperative Testing Initiative under his control, Wheatley leads Chell and GLaDOS to his final trap and attempts to smash them to death. Never the quitter, Chell escapes the trap and presses onward into the facility. Wheatley actively tries to destroy Chell and GLaDOS as they move ever closer, but Chell is able to escape death at every turn, and eventually confronts Wheatley in the main chamber.









Another Core Transfer

Before entering the chamber, Chell and GLaDOS find a stockpile of corrupted Personality Cores. GLaDOS comes up with a plan to attach corrupt cores to Wheatley until the secondary computer systems can detect the corruption and initiate another core transfer. If they can initiate a transfer, then Wheatley will be unseated and GLaDOS can reclaim her rightful position in control of the main system. Chell plugs GLaDOS into a control terminal and moves off to face Wheatley.

In confronting Wheatley, Chell learns that Wheatley is completely inept at maintaining the facility and the core reactors are approaching meltdown once again. Chell has a mere 6 minutes to take out Wheatley and get GLaDOS back into the system. Undaunted, Chell engages Wheatley in a fierce battle and is able to attach enough corrupt cores to him to trigger the core transfer. Wheatley objects, and a stalemate is reached. Chell again goes to press the Stalemate Resolution button, but Wheatley has booby-trapped it with bombs.

Chell manages to push the Stalemate Resolution button, but the bomb blast knocks her across the room and back out into the main chamber. The chamber begins to break apart, and pieces of the ceiling fall away revealing the moon overhead. Dazed, Chell fires a portal at the moon and one just below Wheatley. The vacuum of the moon portal pulls Wheatley's core and Chell through the portal. In desperation, Chell grabs hold of Wheatley's core to avoid drifting off into space.

Caroline Cares, GLaDOS Does Not

As this is happening, GLaDOS completes the core transfer and is once again in control of the main system. GLaDOS immediately knocks Wheatley away and into space using a robotic arm, but before Chell can drift away as well, GLaDOS grabs her and pulls her back, thus saving her life. The persona of Caroline is strong in GLaDOS now and she truly has emotions for Chell and did not want to see her die. With Chell back in the chamber, GLaDOS closes the portals and Chell passes out.

When Chell wakes up, she finds herself on an elevator. Before her are the 2 robots which are GLaDOS' Cooperative Testing Initiative bots. GLaDOS then reveals to Chell that when Caroline's persona came forward, she (GLaDOS) learned that Chell wasn't an enemy, but actually a best friend. When she saved Chell from certain death, GLaDOS experienced a huge flare of emotion generated by Caroline's persona. That surge of emotion showed GLaDOS where Caroline resided in her core programming – and GLaDOS summarily deleted her. Now, only GLaDOS remains.

GLaDOS goes on to tell Chell that, as Occam's Razor states, the best solution is often the simplest one. GLaDOS has figured out that killing Chell is a hard thing to do. Time and again, she has tested Chell and attempted to kill her only to see Chell escape and even destroy her (GLaDOS). Chell has proved to be so problematic that GLaDOS has become all but superstitious about actually killing Chell. Something as simple as slitting Chell's throat could result in Chell's blood spurting into GLaDOS' circuitry and could short her out. GLaDOS clearly sees Chell as a danger. As such, the simplest way to deal with a dangerous element like Chell, is to simply let her go. Chell wins.

Thus, GLaDOS sends the elevator to the surface and opens the door thereby freeing Chell once and for all. As Chell stands awe-struck over her newly acquired freedom, the door to the facility opens again, and GLaDOS tosses out a very familiar figure – The Companion Cube. Looking closely at the Companion Cube, Chell sees it is indeed the one she carried with her in test Chamber 17 of Portal 1. They are reunited.

More Humans Needed

Down below, GLaDOS has no more human test subjects, but she does have the robots of her newly created Cooperative Testing Initiative. Wasting no time, she begins testing them. She pushes them further and further into the depths of the facility, and as she does so, she comes to realize that testing just isn't the same without humans.

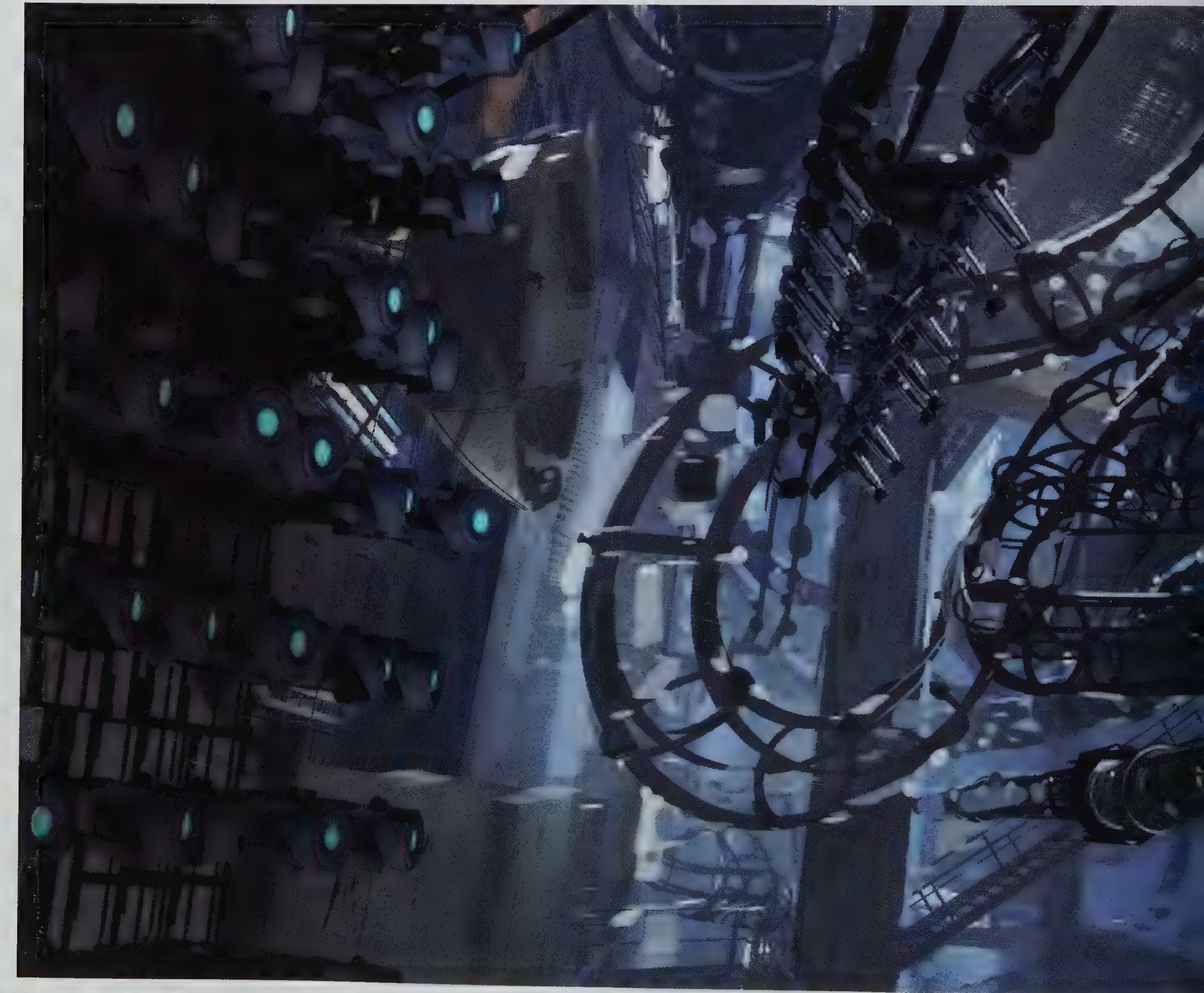
Onward she pushes the robots, and eventually they reach a large locked vault which GLaDOS refers to as the Human Vault. Upon opening it, they discover thousands upon thousands of human subjects packed away in countless stasis containers. With such a wealth of human test subjects before her, GLaDOS wastes no time getting started…

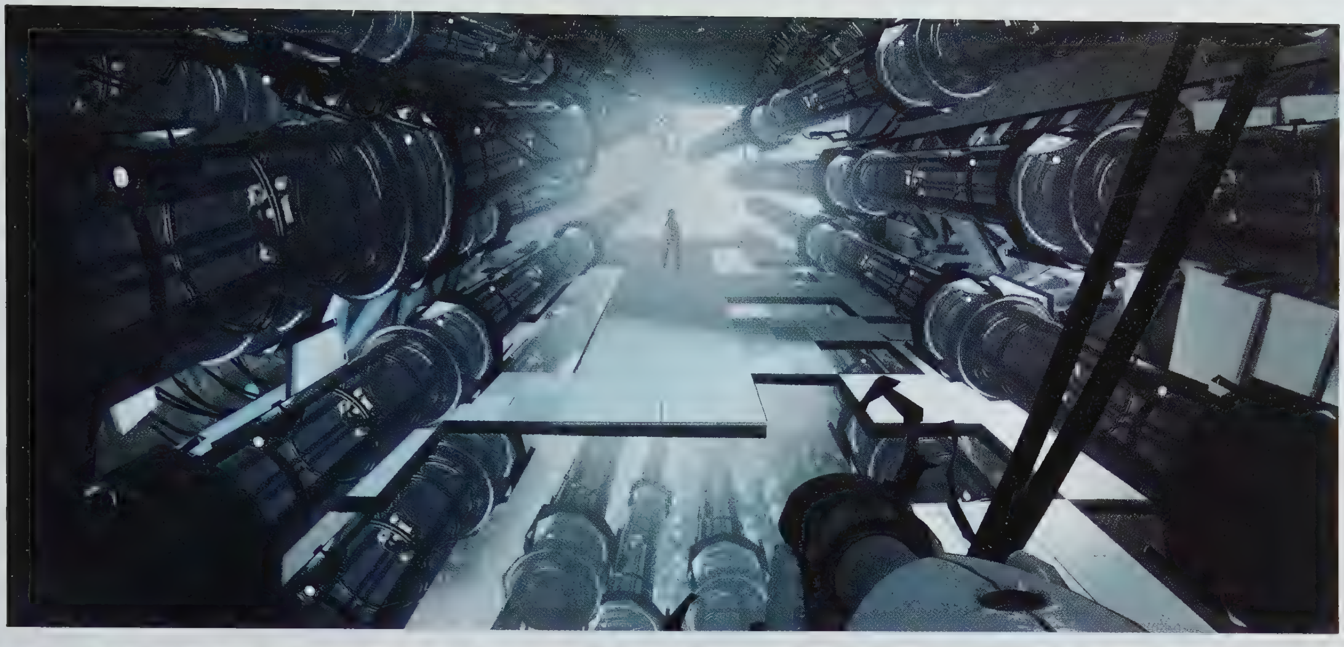
Auxiliary Data

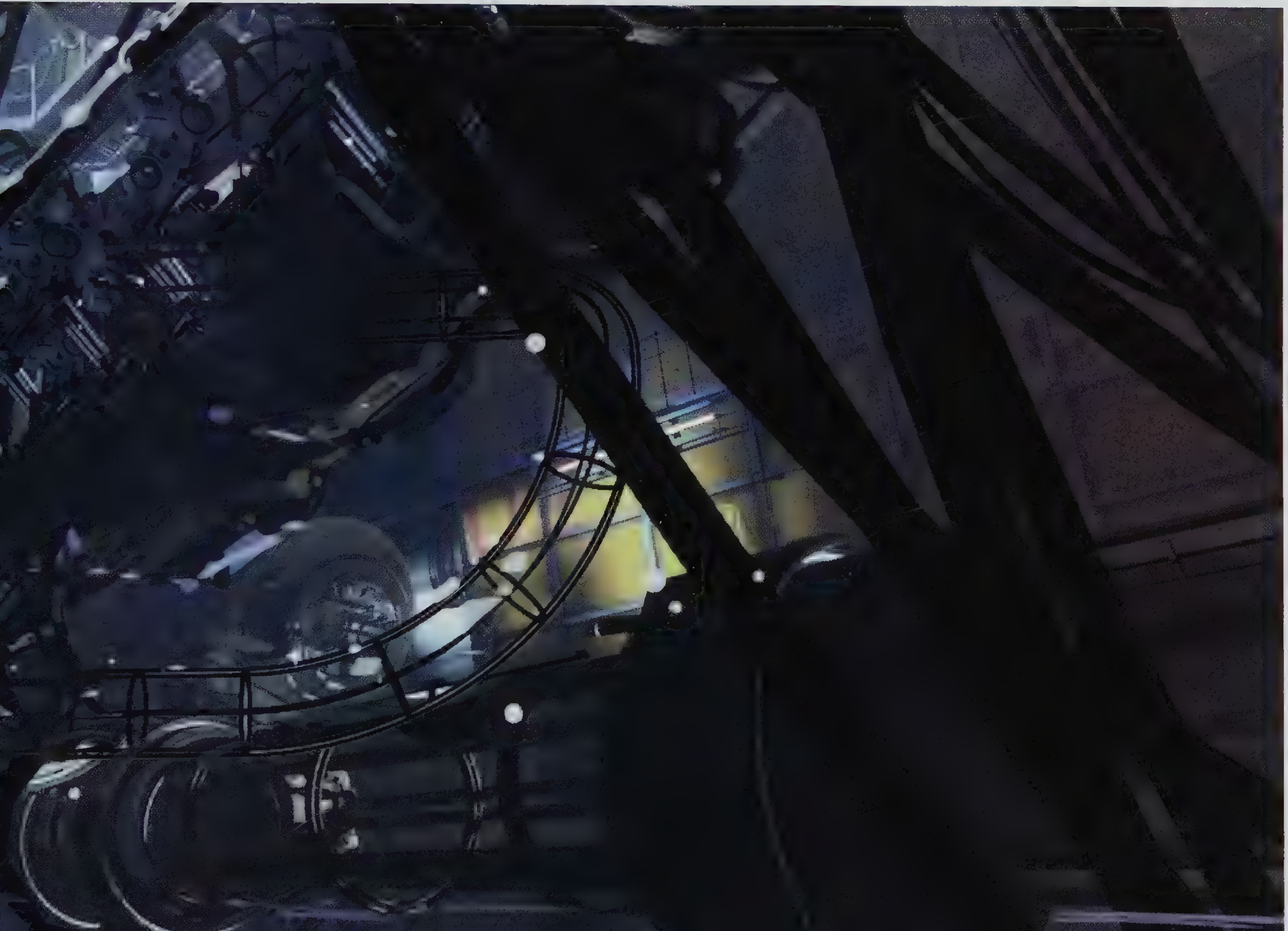
This last bit of story is revealed in the Co-op Campaign of the game.

An Audience with Valve

While creating this guide we had the opportunity to talk to many of the key team members that worked on Portal 2. The revealing answers they provided us with are all presented here. These answers, along with the wealth of concept and design artwork on the following pages, illuminate various aspects of the game's design in unexpected ways and provide an insight into the design and testing process of creating a unique story-drived puzzle game. This was a really long sentence.







Eric Wolpaw

Writer

How did you come to work at Valve?

EW Chet Faliszek and I got hired together about six and half years ago. We had been working on a website about games, and one day we just got an email from Gabe saying "Do you want to come work at Valve?" I wish it were a more interesting story.

When did this happen?

EW About six and a half years ago. It was right before Half Life 2 shipped, but it was about a month between then and us starting.

Was there a plan for the story of Portal 2 all along, or did you guys make it up as you went along?

EW When we were working on Portal 1, we didn't really expect that there would be a sequel, but you always have it in your mind "Well, what if there is a sequel? It would be cool if we could do this." We kind of made sure we had some hint that GLaDOS was still alive at the end of Portal 1, because thought we'd bring her back for Portal 2. That's the main thing we figured we'd bring back.

Going forward for Portal 2, it was kind of the classic Valve process. We sat down and we just thought what can we do? We'll put some constraints on ourselves, one of the constraints being we're not going to go outside. We're not going out into the Half Life universe, we're not going to be fighting Combine. It's still a puzzle game, we think there's a lot more to do and see in Aperture Science. We sort of had a story we wanted to tell and one of the early ideas was that we didn't want to do the exact same arc GLaDOS had in the first game. We wanted her to start off from where she left off in the first game and then go somewhere. In this case, pretty early on we were thinking we should have her have this buddy cop thing where the two of you have to eventually team up against someone else, because people sort of liked GLaDOS even though she was a villain.

We sort of had this weird thing in early playtests, where really early on we had a situation where you were alone in the beginning and you switched GlaDOS on. It was sort of half accidental, but people still knew what they were doing. Every playtester was like 'Man, when's GLaDOS going to be back?',

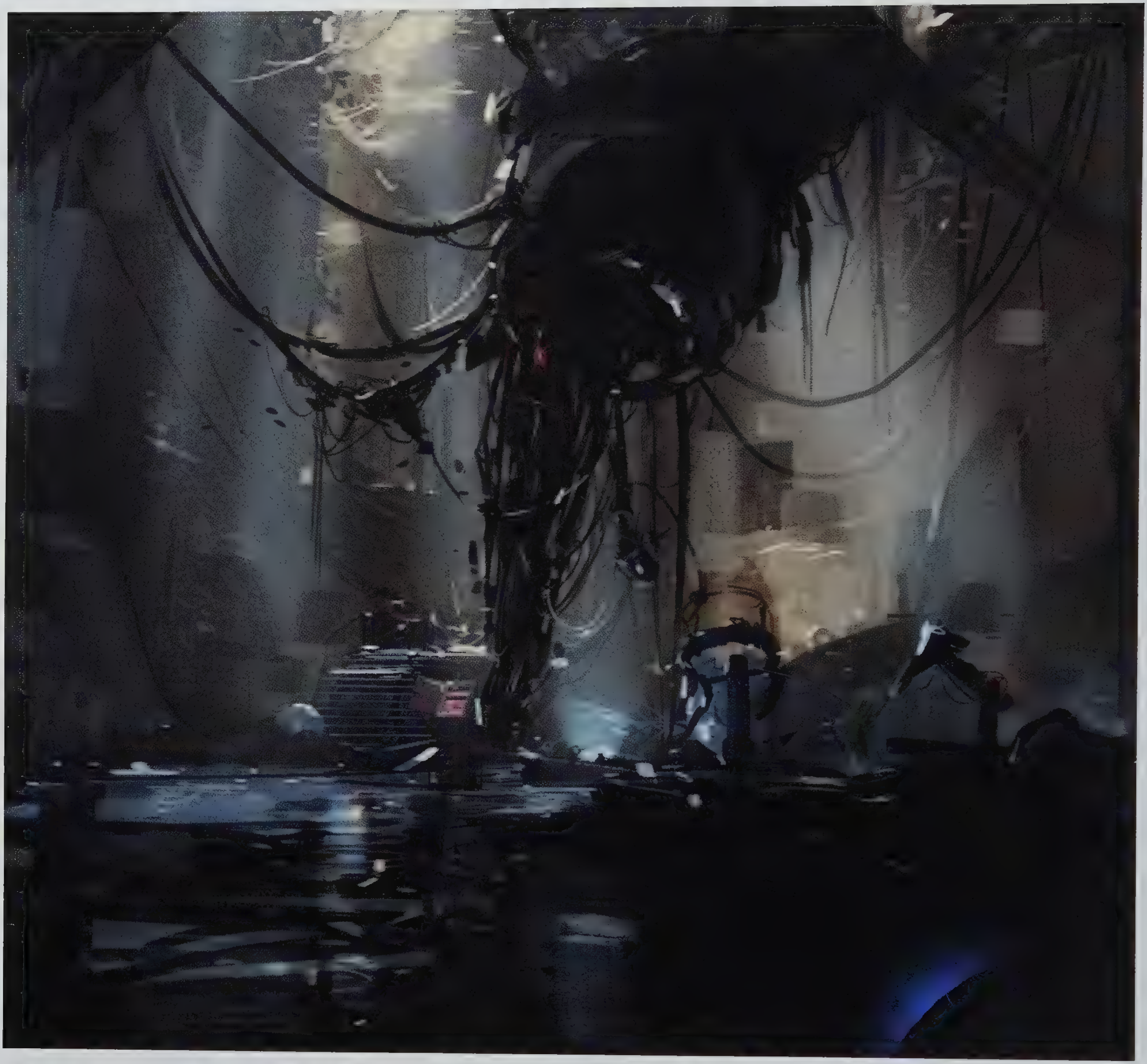
but they didn't want to press the button thinking 'Why would I want to turn her back on?' We were thinking they'd want to turn her on because they wanted her in the game, so here you go you can turn her back on! People didn't want to do that though, so we have Wheatley kind of do it. It's not like you have a choice, but that seemed to make people satisfied. They got GLaDOS back.

Also, this was going to be a longer game, so just GLaDOS yelling at you for 7 straight hours we felt was just going to get old pretty quickly. We also liked how she gets progressively more human sounding to the point where you're like: 'Oh shit, where's my old GLaDOS?' She learns some lessons then immediately deletes all of them so that she's kind of reset for whatever comes next.

Is it true that Chell wasn't always going to be the main character?

EW Yeah, actually that was in fact one of our initial constraints. No Chell. The alternative was just another faceless test subject. Our thinking was, and I think this turned out to be true, we didn't think anybody was invested in the character of Chell. We never say her name, I think it's maybe written on her jumpsuit in Portal 1 and it was in the model, and that's how people figured out what her name was. Chell had her story, she got out at the end, good luck to her. We'll just make a new test subject.

How it turned out, was that we had this opening sequence similar to what was there now, but a bit different. You'd go through a period of testing until you woke up GLaDOS. What we saw when people who had played Portal 1 played those initial tests was that they didn't care that they weren't Chell in that initial part. But when GLaDOS woke up they cared that she didn't recognize that it was them, the player, the player being the person who killed her in Portal 1. We figured they didn't care about Chell, but they cared that GLaDOS had this relationship with the player and they wanted that to continue. That's why we brought Chell back. Not necessarily because of the Chell character, but because of the relationship GLaDOS has with the player.



How long was Chell in stasis?

EW We've never really said. A long time. That may pay off at some point in the future. Long enough that the facility has gotten overgrown.

Why exactly did the power fail?

EW We had this idea that it was sort of like a laptop that's in hibernation mode and it's just slowly, slowly, slowly draining down. Someone needs to wake up the facility and plug it back in or it's going to blink out for good.

So what were the apocalyptic circumstances mentioned by the announcer?

EW Well, there was an apocalypse outside when the Combine took over in Portal 1, but the idea was that the apocalyptic event being referred to was Chell shutting the facility down in Portal 1. In this kind of absurd funhouse of science they had this plan to continue testing even after something horrible happened.

GLaDOS stands for Genetic Lifeform and Disk Operating System. Can you explain the genetic part?

EW It turns out in this case, somehow, through some mystical process we don't know about, she was actually the personality of Cave's assistant. Caroline was injected into her and kind of formed the basis for her thought processes. That may have eventually been subsumed by just being in this thing and not having any real human presence like a body.

GLaDOS was destroyed at the end of Portal, so at the beginning or Portal 2 who revived Chell and put Wheatley in charge?

EW Well, Wheatley's not really in charge, he just didn't get blown up in Portal 1 and he's been sort of spinning around on that rail trying to keep the containers alive. There's a comic that tells the story of Rattman. He's been kind of shadowing you since the end of Portal 1. The comic explicitly lays out that he put you into suspension, because you're hurt and he doesn't know what to do with you.

Is Rattman dead by the time Portal 2 takes place?

EW Maybe not…

Once Wheatley gains control he tries merging cubes with turrets and they come out a mess. Is this because of the facility's condition, or is he just inept?

EW Yeah, he's just an idiot. He's just not good at it. There's a Bill Cosby joke that says 'Cocaine intensifies your personality, but what if you're an asshole? ' He's an idiot, and GLaDOS' chamber kind of just intensifies your base personality, so it actually makes him a bigger idiot than he even was to begin with. He's an amiable idiot, but he's in no condition to run the facility.

We see a shorthaired man wearing glasses and a goatee in one of Rattman's drawings. Is this Gordon Freeman?

EW Oh shit, I don't even know about that. Probably not. I hope it's not Gordon Freeman! You know we took it out, but we did have a line when Wheatley first woke you up, where he said 'Nobody's been around here for a while, but there's an old guy walking around with a briefcase looking for you.' We decided we were just making trouble for ourselves with that one.

Has humanity been wiped out?

EW The insinuation that humanity has been wiped out is mainly just their catch all backup system that's just making assumptions. Something apocalyptic happened, probably everybody's dead, so that's what we're talking about.

How much does Chell actually weigh?

EW I have no idea! She certainly doesn't look overweight! I think that's just another lie.

Why did you go with J.K Simmons as Cave Johnson?

EW Originally we had written Cave as kind of a southern guy, but then it was sort of a little too George Bush, and we always had in our minds that Aperture Science was in the upper peninsula of Michigan. J.K. Simmons was someone we always had in our mind and we didn't really know if we could get him, but we went through the channels and sent mail to his agent and he was like 'sure'.

What did he add to the character?

EW He added a lot in the sense of what actors bring. Unlike Stephen Merchant, there was almost no ad-libbing from J.K. Simmons. He pretty much just read what we had, but when you're in the studio you tend to rewrite some things on the fly because of how an actor sounds when they read.

What about Stephen Merchant?

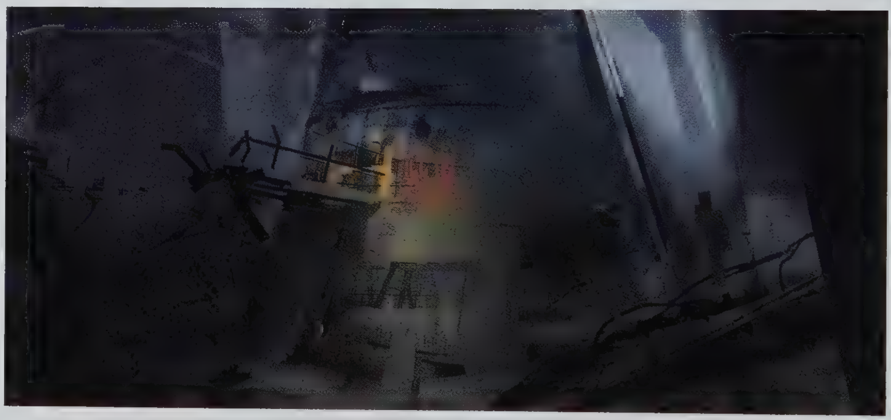
EW There's probably about an hour and a half of total dialogue from Wheatley in the game, but we recorded sixteen hours of Stephen Merchant, so he definitely went off on some tangents. At the end of the day there was improvisation in the sense that he'd take this written thing and make it sound like he was saying it off the top of his head. That's one of the reasons we casted him. Video game characters tend to have a very deliberate line reading and often doesn't seem super natural. We really wanted to try having a character that sounded like they were improvising their lines basically - and he's a really great improvisational comic.

The ARG seems to conflict with the game about the cause of Cave Johnson's poisoning. Can you comment on that?

EW Ehhh we probably should have thought of that. Who knows! One or the other!

Some of the technology seen in Half Life 2 looks similar to some of Aperture Science's inventions. Does this imply Aperture science was using Combine technology, or was it the other way around?

EW Let's call it the other way around I think. Unlike Black Mesa, which seemed to be willingly collaborating and actually ending the world, Aperture at the end of the day isn't the place that ended the world.



At MY elementary school science fair, it was always lemon batteries. You guys chose potato batteries. Did Cave Johnson buy up all the lemons?

EW Yeah that's right, all the lemons are gone. Also, potato batteries just seemed sadder. We tried to think of the saddest possible thing you could be put into. Lemons are yellow, and almost a little bit flashy like a sportscar, but with potatoes there's no disguising the fact that it's just sad. Also, when I was a kid all I heard about were potato batteries!

Were all the praying mantis men wiped out, or will we fight them in Portal 3?

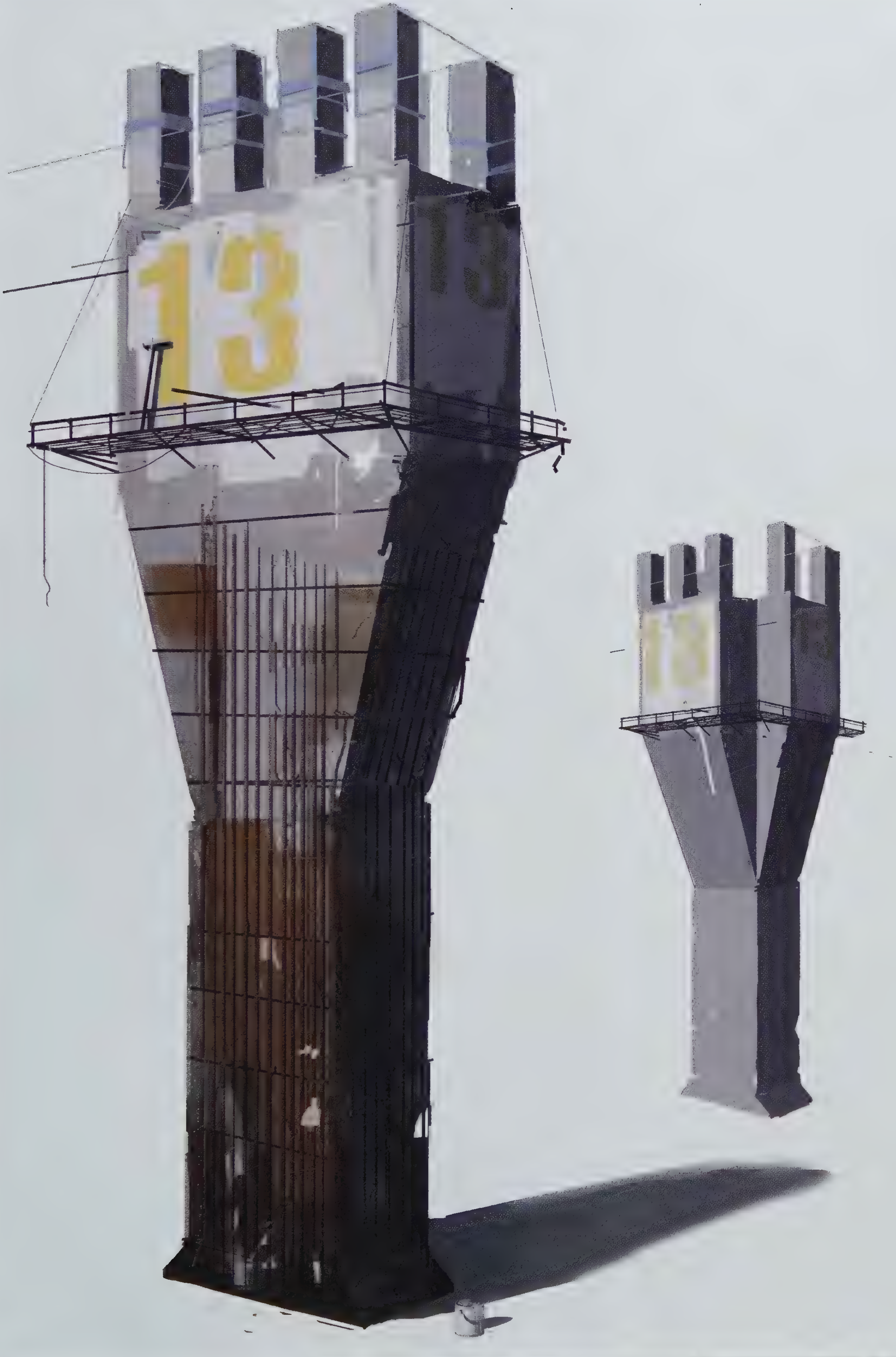
EW That would be too big a spoiler! Just imagine how hard it would be to wipe out a whole army of mantis men though. There's probably still some floating around…

Given her fear of paradoxes, how would GLaDOS answer the age old question 'Which came first, the chicken or the egg?'

EW She'd blow up. Actually, because she was in the potato, she didn't really have the necessary processors to get screwed up by the paradox. I don't know if you saw, but all the Frankenturrets blow up as soon as she says it.

If all the test subjects were prisoners, does that make Chell a murderer? Is that why she's so good at it?

EW No, she's just super focused. I always thought of her as pissed all the time, that's why she never says anything. For Gordon, there's no real reason why he doesn't say anything, but Chell doesn't like these robots and doesn't even want to dignify their shenanigans with a response. She's just storming through this place PISSED.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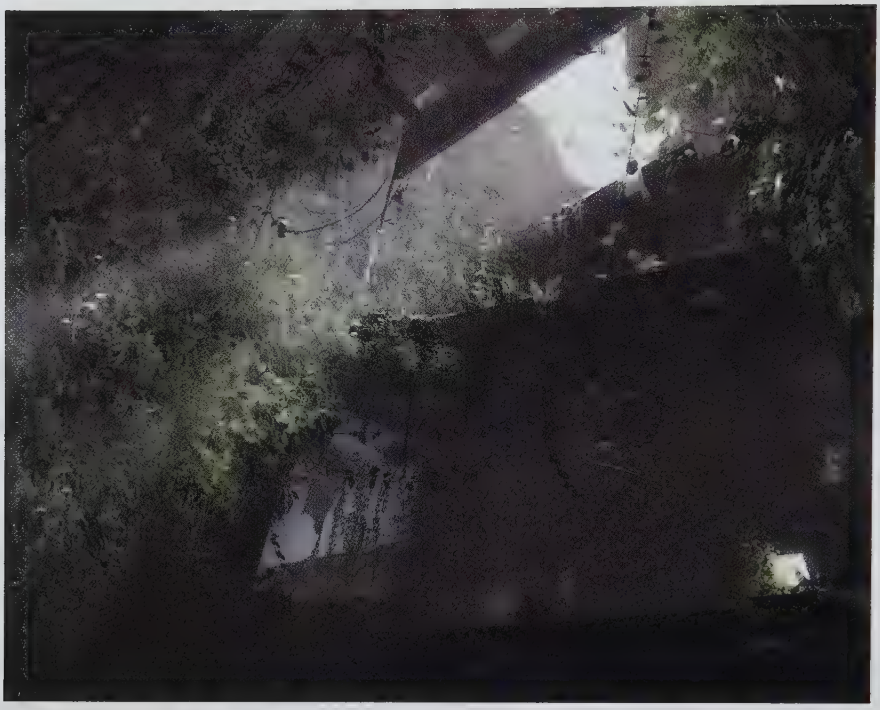


Was Caroline just Cave's assistant, or was there more to it?

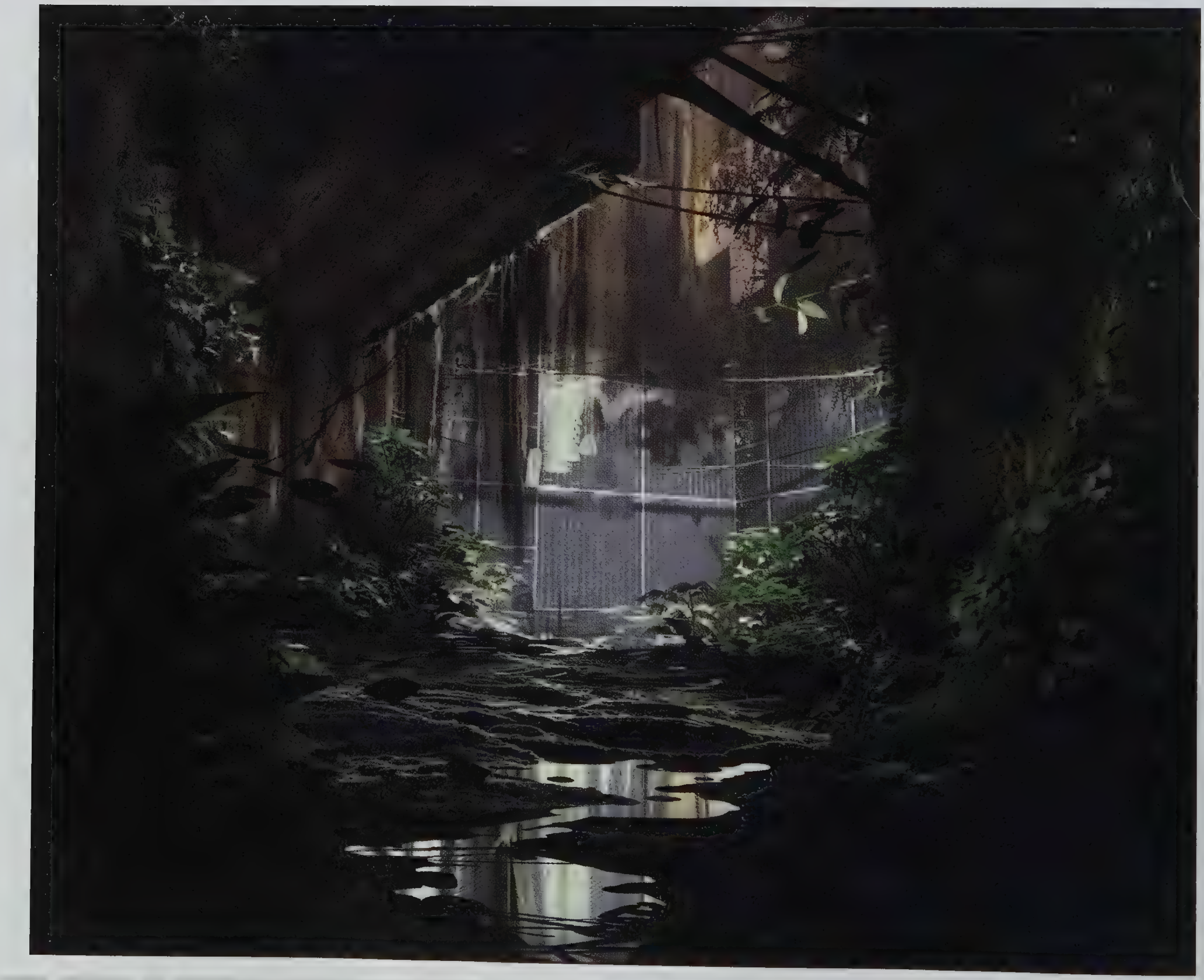
EW They weren't married, but there might be more of a story there…

Is the Companion Cube given back to you in the end the same one you euthanized in Portal?

EW Yeah. But how did it get out? Did GLaDOS throw it out, or has the Companion Cube been on its own adventure through the facility? It might not be happy you tossed it into the incinerator!

How do you position the story between this universe and the Half Life universe?

EW Even though they exist in the same universe, we kind of think of them as different stories that simply reference each other. The biggest thing we discovered from running tests is that the portal gun is really awesome in these puzzle environments, but it isn't really that fun when fighting



combine. There's just all sorts of problems. Maybe some of them are solvable, but there wasn't any compelling reason to do that yet because changing Portal from a puzzle game to an action game clearly wouldn't be the right decision.

Did you consider giving the player an older version of the portal gun?

EW Yeah, we had these chambers set up to ostensibly test the gels, but when you think about it they work perfectly well as portal tests. We thought about giving them an older gun, and the version we wanted was this giant thing to drag around, and it turned out it just wasn't fun lugging this thing about.

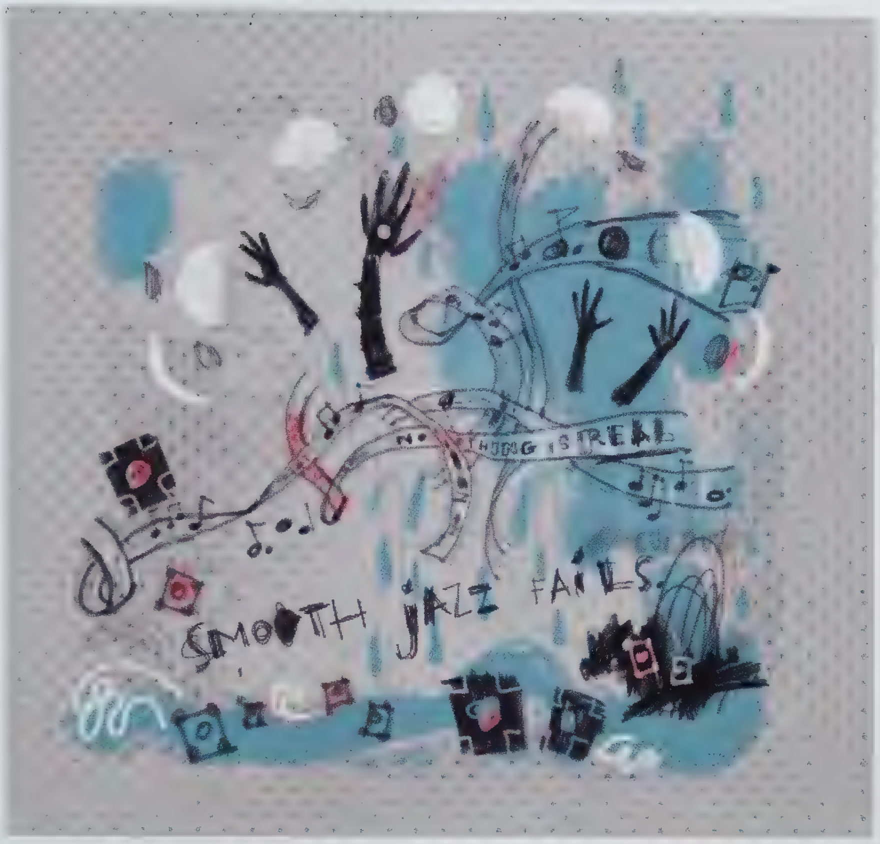
Can you explain the special properties of moon rocks that make them good portal conductors?

EW Well, there was some previous portal surface that worked but was super unreliable. It'd be like Jeff Goldblum in The Fly, where you'd walk through and come out with your arm sticking out of your head. The moon rocks for whatever reason just turned out to be the best portal conductor. So the fiction is that they made all this portal paint, and painted the chambers and facility with it.

And that's why you can just shoot a portal at the moon.

Why didn't they shoot a portal at the moon in the 60s then and beat the Soviets?

EW We had a bunch of signs planned that said things like 'The moon is not your friend' or 'Do not shoot portals at the moon'. We were trying to imply that this was a real problem and people couldn't resist shooting a portal at the moon. In fact, at one point when you shot the moon, it was going to be littered with skeletons and portal guns. It was a good gag that didn't make it in.



Who at Valve is the best at Portal?

EW I think Jeep. I'd be surprised if people don't tell you Jeep.

If you were Cave Johnson, what would you have the lab boys invent?

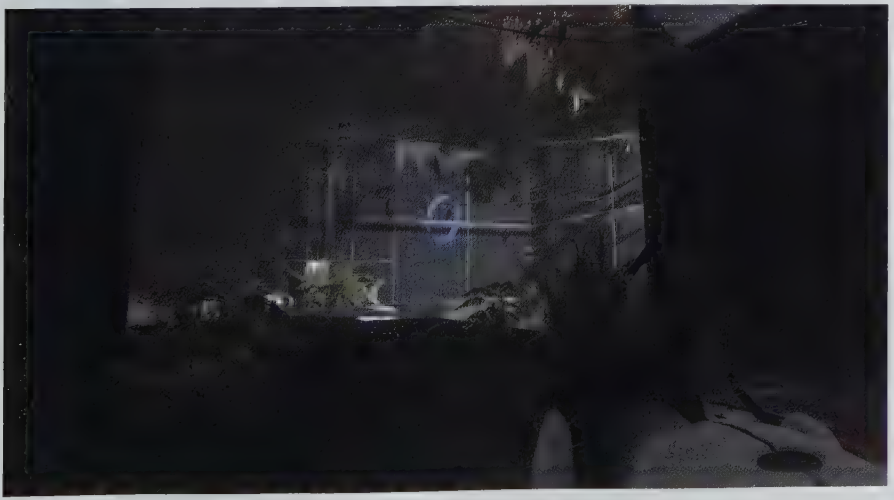
EW There's kind of a running joke that they've had this portal gun forever, you know this world-transforming technology and they haven't figured out how to market it or what to do with it yet! I guess I'd have them figure that out! In retrospect, I'd have them try to shut down Black Mesa as well, so it doesn't cause the end of the world!

Who would win in a fight, Chell or Alyx?

EW Alyx seems to not fight without Gordon, where Chell is kind of doing it by herself. Granted, she's not fighting a lot, but she seems fairly formidable. I'm going to go with Chell.

If you could place two portals in real life, where would you put them?

EW Honestly now I'd put one at work and one at home. You might say you'd put it in Hawaii or something, but at the end of the day commuting is where I waste so much of my life. I just hope I don't get fired and I don't plan on quitting any time soon.



Laura Dubuk

Artist

What did you do for Portal 2?

LD I did most of the textures in the game. I did the initial white and black tiles. I did mostly environment stuff, like Chapter 6 environment textures and real world stuff.

What direction were you given to make the textures of the old Aperture Science different from the new ones?

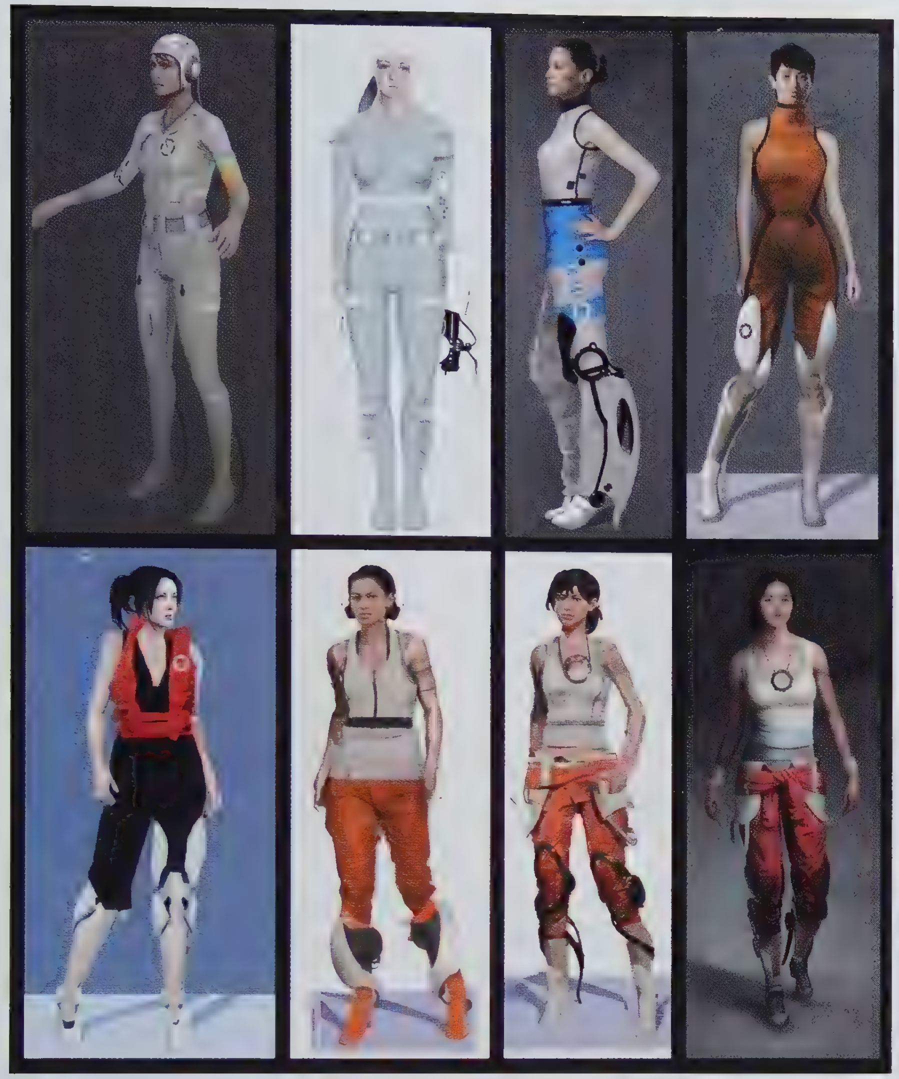
LD We were just trying to figure out what Aperture Science was. The 1970s a lot of people are familiar with. You've got a lot of crappy offices, kind of low-tech. They didn't have any funding, and didn't have any high-tech wall panels that spun. The test chambers were kind of like these sound stages; they were built out of wood almost like a movie set. So that was sort of the direction we went in. We saw photos of sound stages and movie sets that were cheaply painted with bad wallpaper. We were like, 'That's Aperture Science!' They're trying to fake people out, by making them feel like they're somewhere else. Some of that vibe made it into the 1970s area, where it was kind of cigarette stained low budget science stuff. In the 40s they had a lot of money, in the 60s they had less. The 80s were absolute shit!

So Aperture Science is in Michigan. Did the artists go to Michigan?

LD I wish! In our minds we did! We were imagining it. We found enough references, I think our imaginations took us there.

What about the Rattman drawings?

LD Mostly, Andre did those. The way I see it, because they're there, a lot of it is left to interpretation. There's a backstory, but he's basically creating these things because he's trying to figure out what's happening. He has this whole story in this head, and like a human being he can't help but obsess about these events that happen and try to figure them out. So he creates these shrines. He thinks of [Chell] as a savior. She killed the monster, so she's a saint.



Why did you redesign Chell's costume?

LD Yeah, I was quite involved in the character design process. I think the main reason we decided to give her a redesign was because it was going to be a triple-A game, and we wanted to refresh her and do an experiment with her and see if we can do something different. Even though we eventually realized she wasn't the main character, that it was mainly about GLaDOS, we still did a character design process with her. Initially we just went off the deep end and tried to do a complete redesign, but eventually just came back to an altered jumpsuit. I think the main reason we refreshed her was because it's a new game. It's a sequel. Things have happened. With her being in stasis, I think people would expect to see some kind of alteration.

Who designed the crappy motel room from the intro?

LD That was me and Richard, but I modeled most of the final props and textures for that. It's based on the most iconic Super 8 motel! Those usually have a nice picture in them! I always envisioned [all the stasis chambers] were the exact same room. Aperture likes doing things in a very controlled way. I imagine they'd all be the same. That's the idea I want to give the player. They see one, then they see the silhouettes of the others.

So you didn't get to go to Michigan. Did you at least get to go to a Super 8?

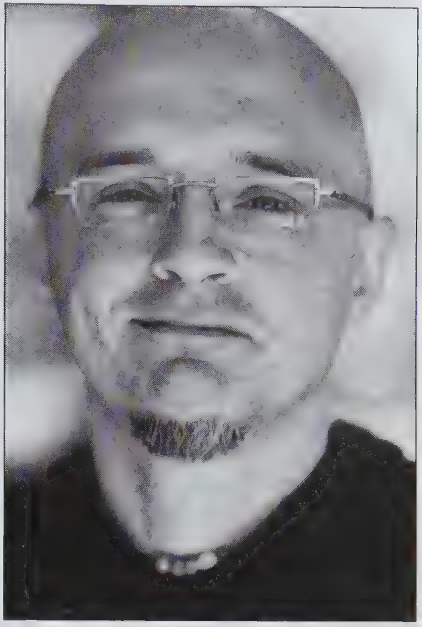
LD We had a lot of reference material off the internet. But you know, I stayed in a really crappy hotel room in Paris. I got a lot of inspiration from the photos I took in that hotel room because it was awful! It was like, this retarded art deco thing that had no vibe which was really offensive!

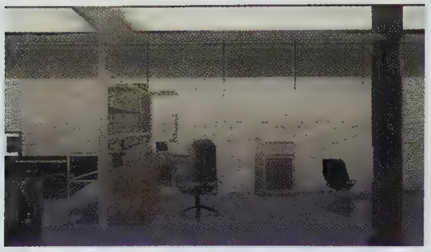
What was the thought behind the modern day white and sterile test chambers?

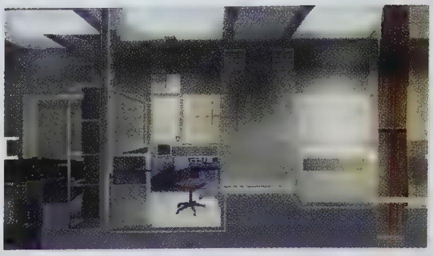
LD It's gameplay! There's the broken down test chambers, and there's the clean ones. It all stems back to the gameplay and clarity. We didn't want to deviate too much from the original. Early on, there was an idea making the black tiles red or blue, but it

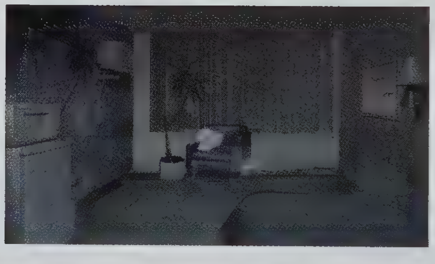
Ivan Simoncini

Artist









seemed like it didn't add anything so we cut that. We basically kept the set of textures so the level designers could build with these. There's different sizes of the tiles to break it up visually. Around detailed areas you could have smaller tiles.

Talk about Wheatley's design.

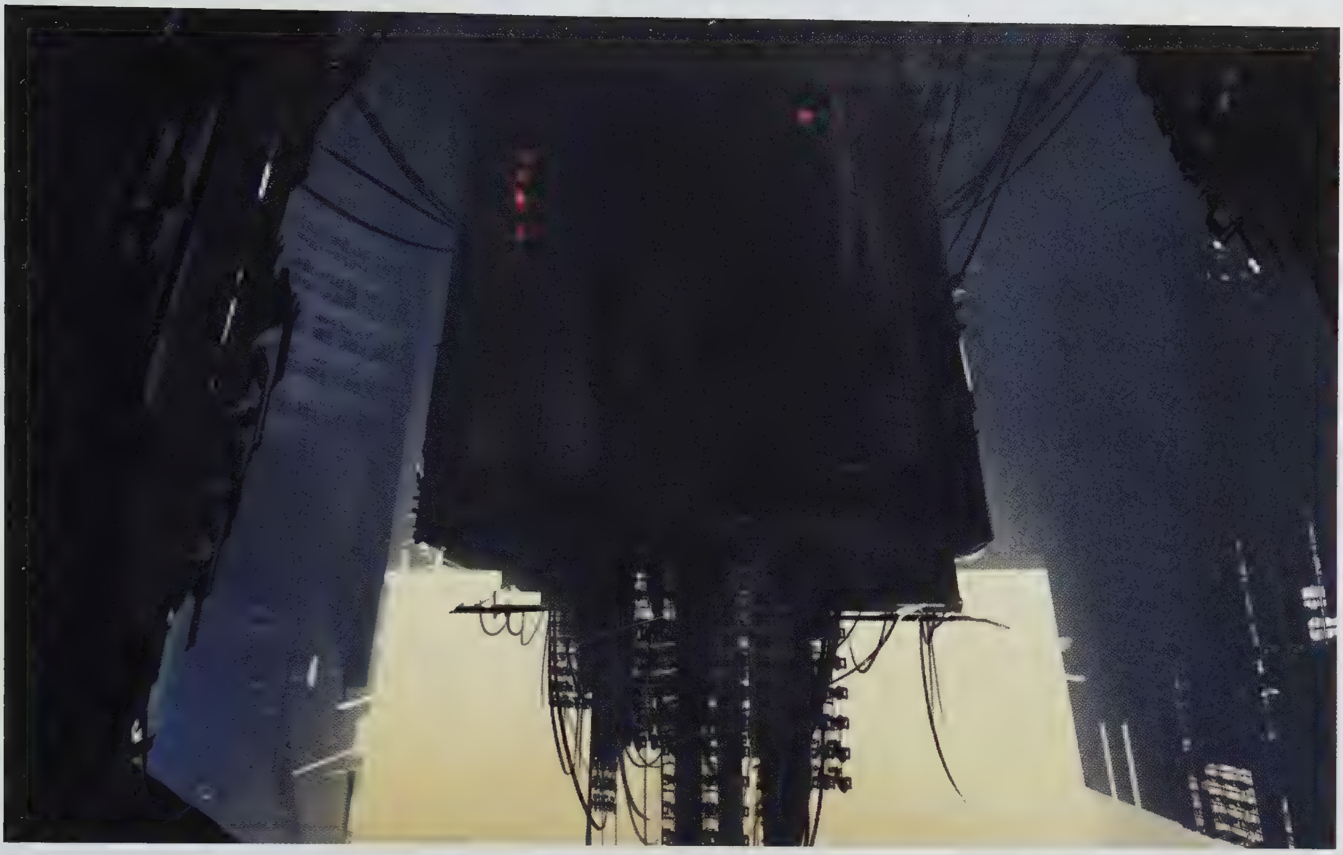
LD Yeah, it's like a paradox. He came from the personality spheres from the original game. They're just pure personality. The angry one is just like 'Rrrrghhhaaa', and the calm one is like super chilled out. I think where it came from, and this is my theory, is that it was a similar upgrade to all the other portal props we did. We went back and reverse engineered the button, and the portal gun and all that, and used actual mechanics to make the thing work. So that treatment was applied to the personality core.

Did you guys model the old portal gun we see in the posters?

LD We always imagined there was this predecessor in our imaginations, but never really made it into the game. We just needed a sign for one of the labs, and needed to make an icon, so that just kind of came about that way.

How were the turrets adapted from the Half Life turrets?

LD Oh man, this goes into ancient history. Back in time with Portal 1, there was a connection there because of resources and the engine. You just put a different model over it and keep the same behavior.



Who's the best at Portal here at Valve?

LD Jeep Barnett. I heard he can solve the game in ten minutes! I think I might be the worst! There might be someone here worse who just hasn't told anyone.

If you were Cave Johnson, what would you have the lab boys invent?

LD Pink Gel! Beauty gel! Well he can make anything, right? I'd just like to have a house in the salt mine! He could invent a house for me underground.

Why would you want to live underground?!

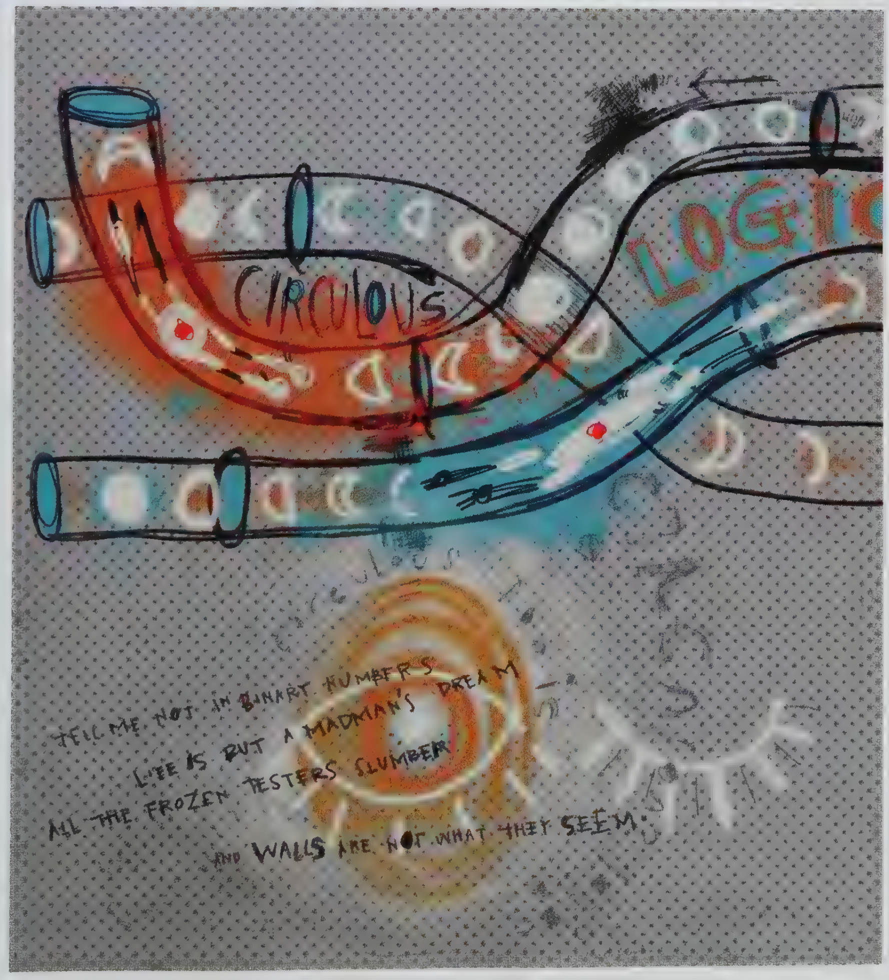
LD It's pretty! With solar lights!

Who would win in a fight, Chell or Alyx?

LD I think Chell would win actually. Did you see her muscles? She has some muscles! I don't really think Alyx has muscles. Alyx probably has some baggage from her father dying, but Chell has brain damage. Now that I think about it, I'd like to say Chell, but I think it would probably be Alyx.

If you could put two portals anywhere, where would you put them?

LD One on the moon obviously! But realistically one in Japan and one in my house. I know the turrets are a big hit in Japan.


CIRCULOUS
LOGIC
TELL ME NOT IN BINARY NUMBERS
LIFE IS BUT A MADMAN'S DREAM
ALL THE FROZEN TESTERS SLUMBER
AND WALLS ARE NOT WHAT THEY SEEM.

So give us a hint, what Portal 2 merchandise are we going to be able to buy? The Animal King Turret maybe?

LD That's a great idea. We should make Animal King pillows so you can lay on them. Chell's tank top. Lots of T-Shirts. I think there's the turret, where you plug it into your computer, and it has a motion detector so when you come into the room it makes a sound.

What's the process for designing the large underground areas?

IS I think the biggest thing when we approached Chapter 6 was that we wanted to have a big difference between the first part and the last part. It was all about opening up the space, and getting out of those claustrophobic test chambers. It was mostly about exploring. Eventually we had to change plans a bit. Playtesters thought it wasn't as exciting as solving puzzles, so we had to bring back solving puzzles again.

LD Yeah it was a challenge, because the feedback we got was kind of counter to what we wanted to have happen. In that first map after the long drop, I think people still get impatient, while some people love it.

IS We actually went back and forth. The first map we thought that it would be cool to go anywhere, and all surfaces would be portalable and you could just go nuts. It sounded exciting, but it never really worked. We ran into technical problems with players easily breaking the map. I know I could do it.

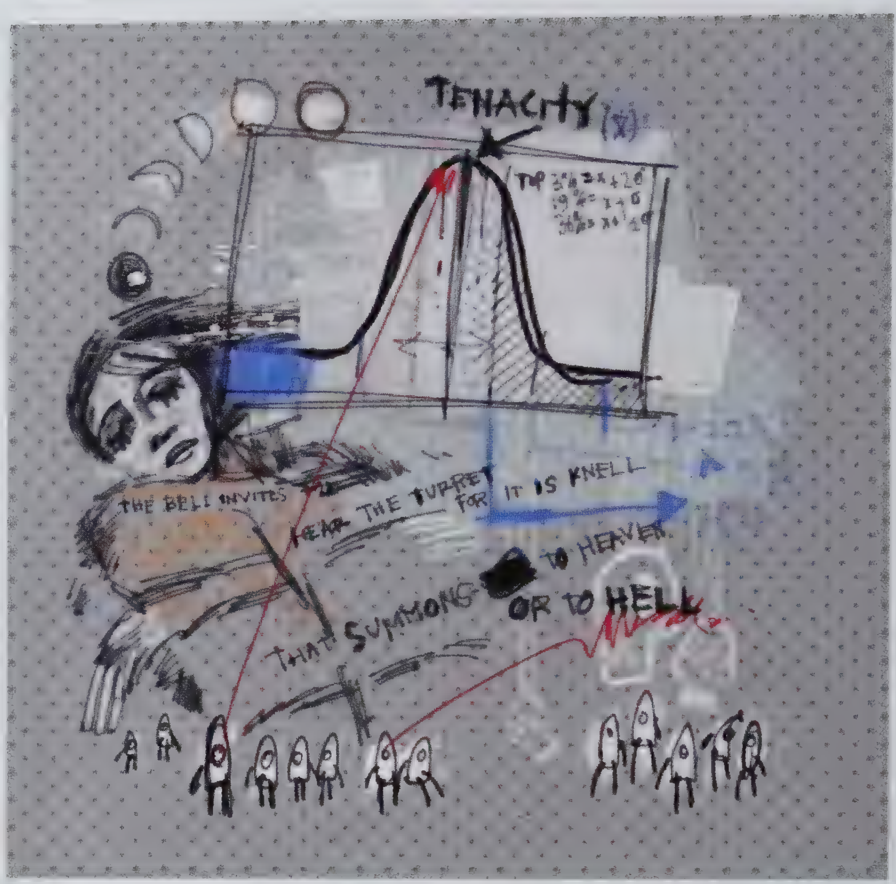
LD I think it's still in a way making the player feel like they are free, but it's not a pointless exploration. There's still a goal that they're trying to get to but you still feel like you're breaking the rules.

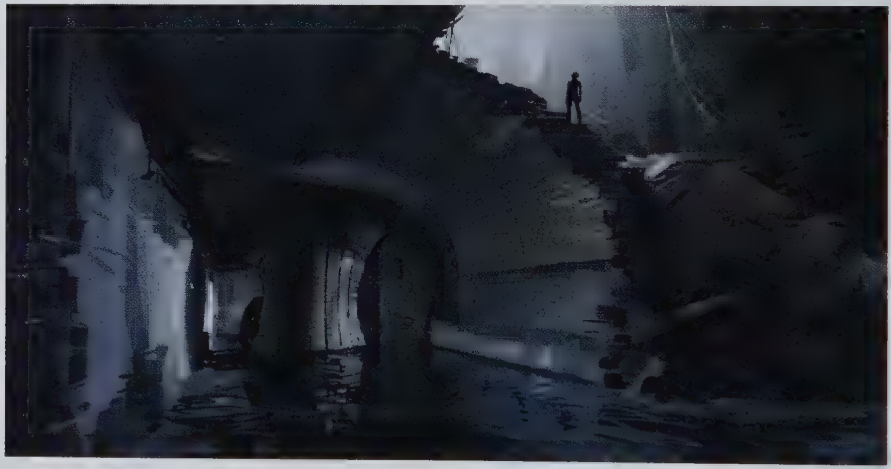
What's the difference in level design between Portal and Portal 2?

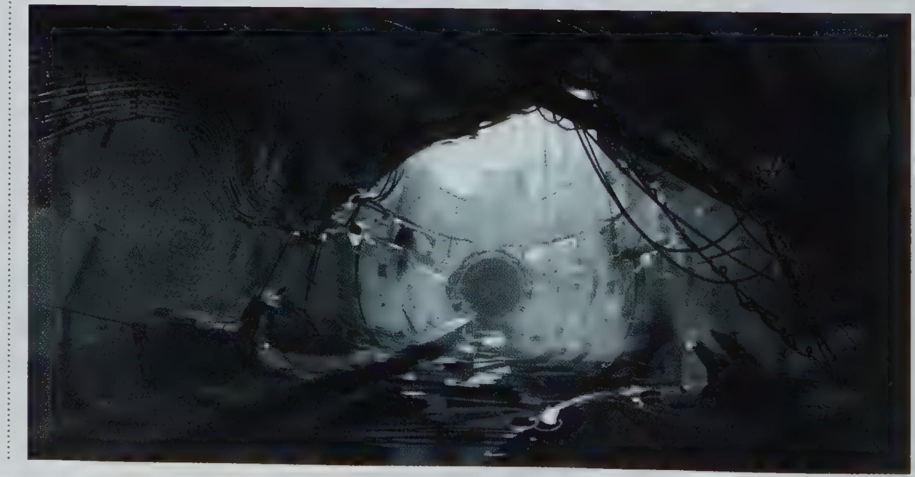
IS It all eventually comes down to playtesting. We actually tried for quite a long time to have a lot of different ways to solve a puzzle. At first it sounded exciting, but it wasn't really exciting. We got lots of frustrated playtesters sitting somewhere not knowing what to do because of the sheer amount of possibilities. It's painful watching a playtester sitting in your map. We actually sit there with a timer, and after say 40 minutes, we just say 'No this doesn't work'.

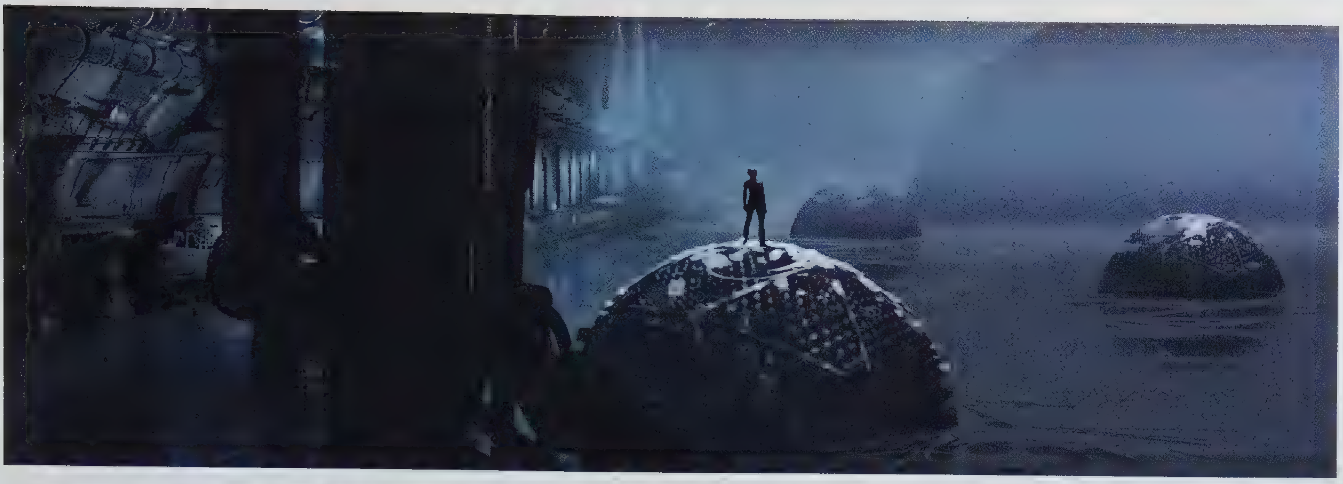
Did you design the chambers independently of the story?

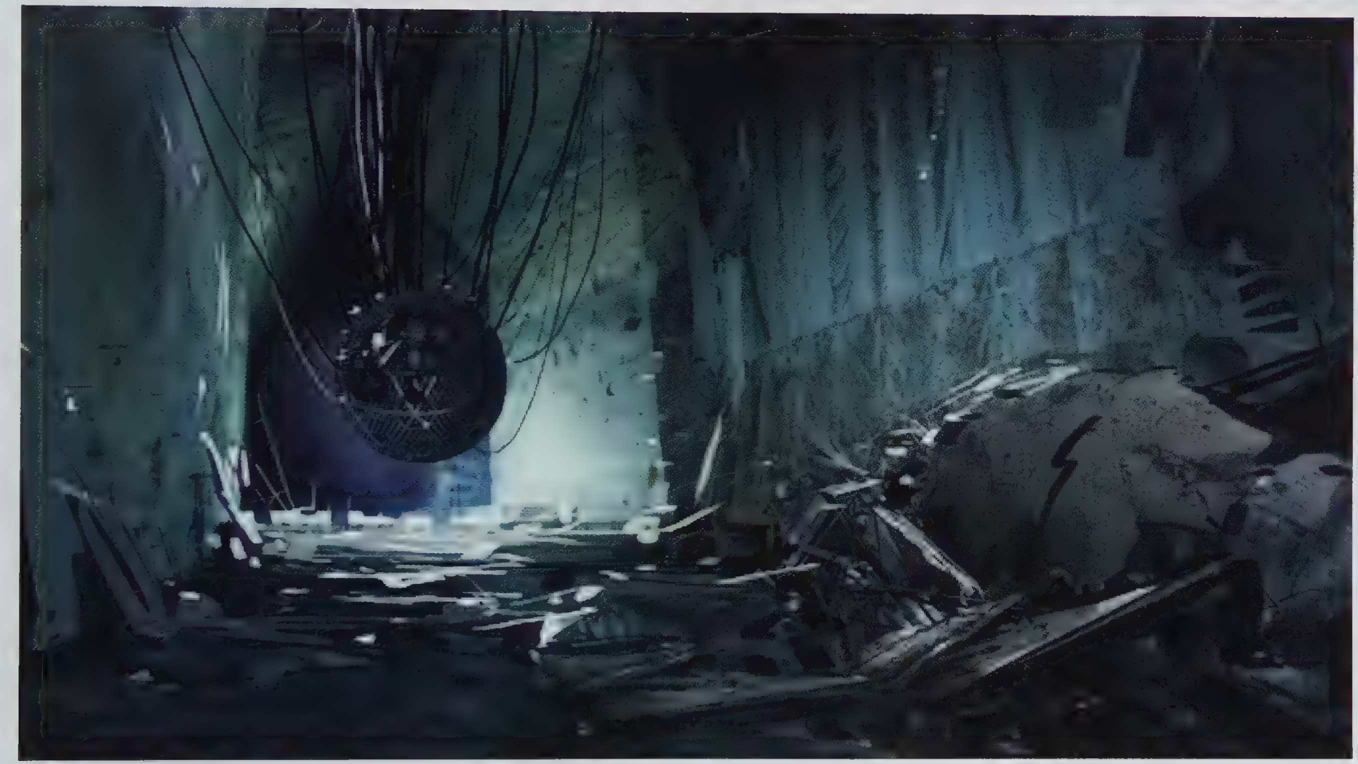
LD The way I saw it was if the pacing called for a story point, we took a break and added story, and if not we went back to puzzles.











IS Maybe an interesting fact is that we had tons of levels that were in rough shape. Level designers were just cranking out levels and we just playtested them to narrow them down. Those are fun, let's keep those. Then we tried to get the pacing right and make sure the difficulty curve was right. I think the story was one of the last things to come in.

What role do playtesters play?

IS The first thing you do after making a level is to send it to your neighbor, and he plays through it to see if it's fun. As soon as we feel 'this could work' then we get external playtesters. If we see the playtesters stuck for more than 30 minutes, then we know 'This shouldn't happen'. It doesn't matter if you use a pro player or a casual player. That just shouldn't happen. We spend a lot of time interviewing playtesters after we playtest, so we just have books and books of notes. After the playtest is done, we usually just gather in small meetings to see how we can solve the problems where things we thought would work didn't work.

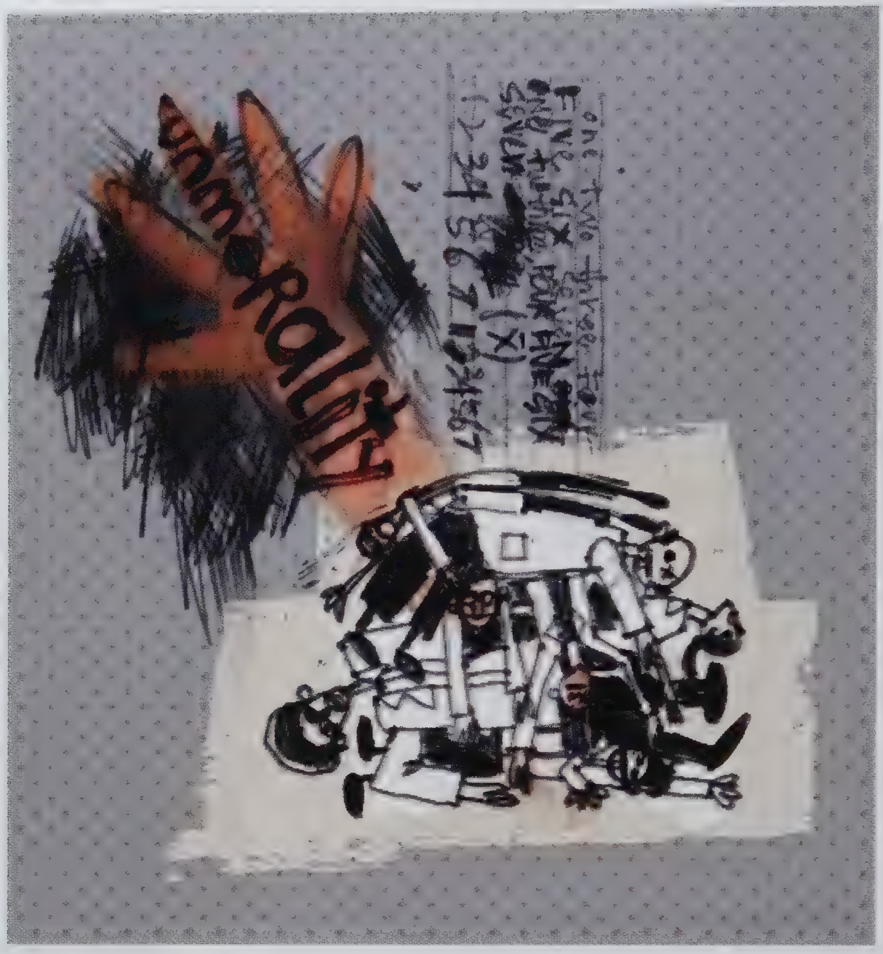
What types of players are the playtesters?

LD There's a wide variety. We had people who weren't familiar with games and had to figure out the controls, and some people who were really really experienced. Depending on where we were with the level or the project, we picked the people we thought would give us the best feedback.

IS I think this was actually one of the first games where we brought in very young players like kids. I remember Gabe's kids would come in. We'd say to our relatives and friends 'Hey, bring your kids in this weekend!' I think kids sometimes ask the right questions. They're super honest.

What sort of player were you designing Portal 2 for?

LD I remember early on, especially with Chell, we were going for a real wide audience. I think people were very happy that Portal 1 catered to a wider audience than a game like TF or even Half Life. I think one of the goals for Portal 2 was to not lose that audience and to perhaps open it up to more people. For instance in the character design, we thought about how Chell needed to relate to mothers and children and be something non-offensive to those people that would capture their attention. It naturally happened with the gameplay.



How do the turrets fit into that?

IS It makes our job easier to design puzzles, and we can give them personality. There's a ton of cool things you can do, plus it's also something that's so well known. I personally love turrets, I've seen it in Aliens and all these movies, so they are familiar even to those who are unfamiliar with games.

LD Turrets can be nice or they can be evil!

Can you talk about the opening ride?

IS The whole intro ride was done in Maya. It's a mixture between real time physics simulations and keyframe animation. The most difficult thing in the intro ride, was that for the first time in one of our games the player was inside the simulation. It wasn't just something cool to look at in the distance. That caused a lot of problems. We have to prevent the player from jumping out of the container, which everybody would try to do, and prevent the player from being killed by falling debris. There's a core simulation and then a fine simulation. The core simulation is just the container riding on the track to the spot where you can get out. The fine simulation was all the little pieces that fall down. The core simulation tells the fine simulation 'If something hits this with X amount of force, break it'. That was calculated in Maya. Then you had to bring it into the game. There were hundreds of bones. It was super tough to get it running on low-end machines. We had to come up with lots of tricks to get it running.

LD It's also the longest. That ride is all one animation!

IS It took 15 hours for the core simulation to compute!

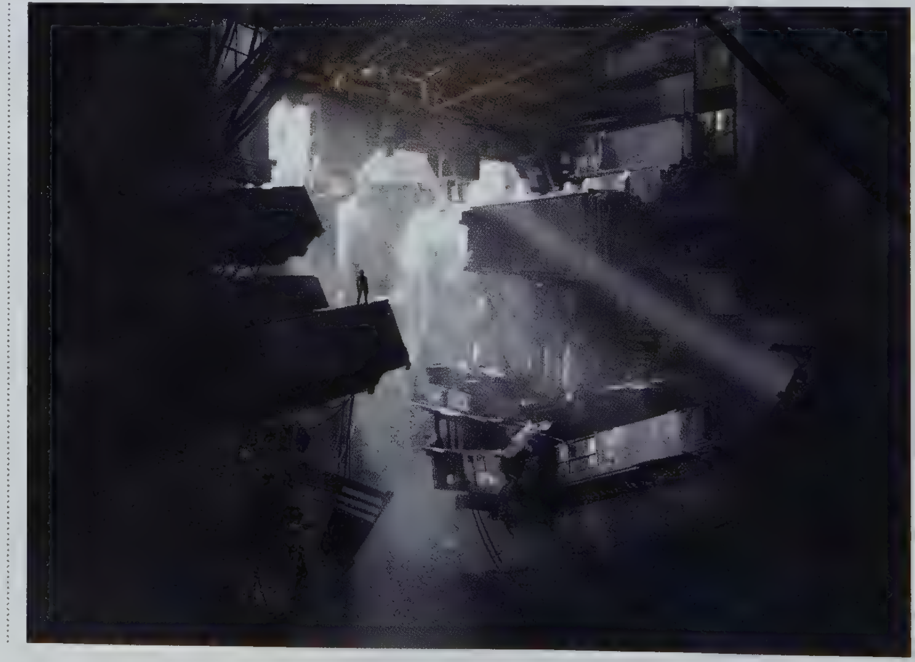
LD It took a long time to calculate that simulation in Maya too. All those little pieces interact with each other, and we'd leave computers overnight to render it.

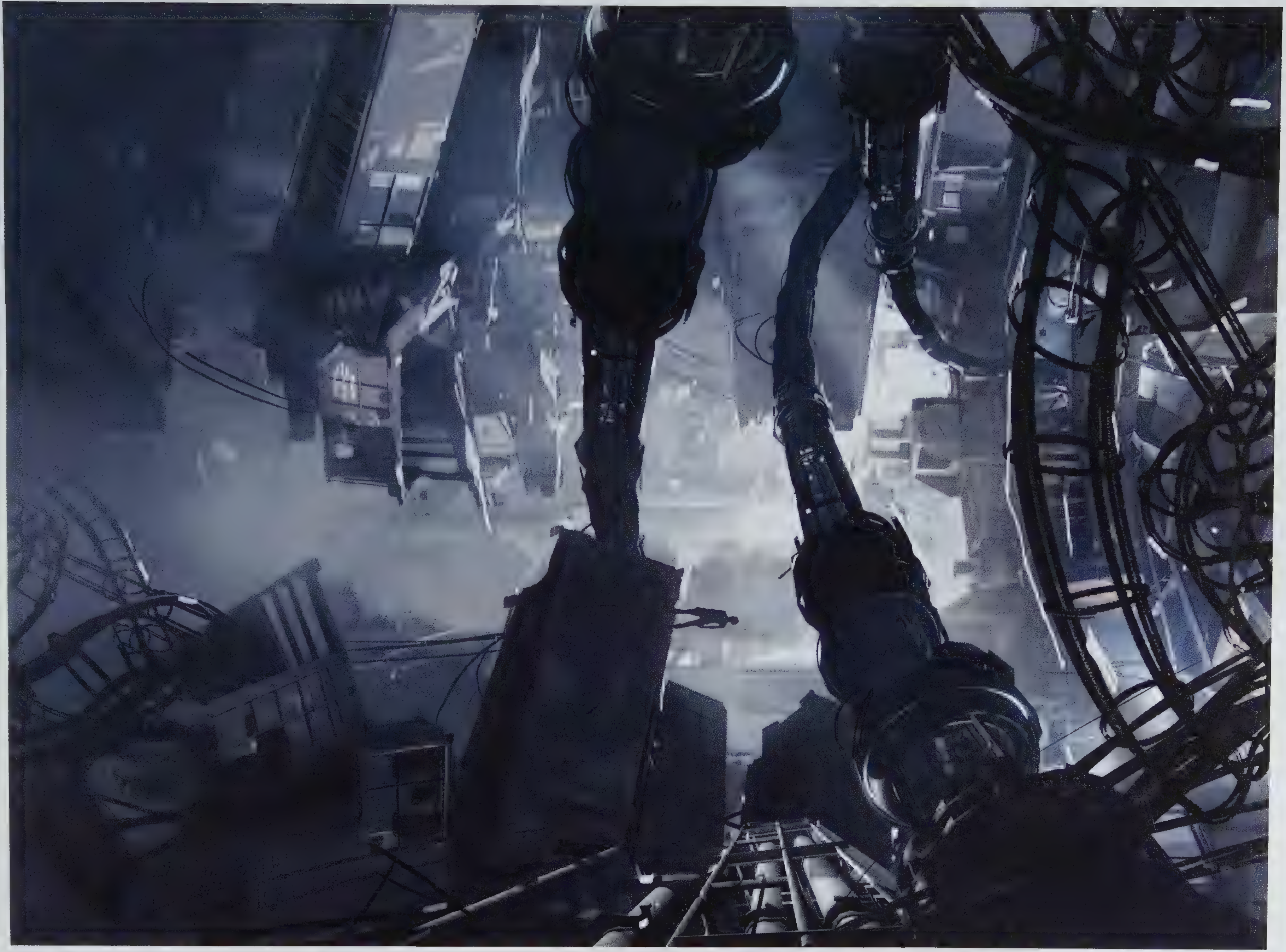
IS You actually see some of the props are screwed into the floor. That makes sense, because those containers get moved all the time to get test subjects around. They'd have these things screwed down.

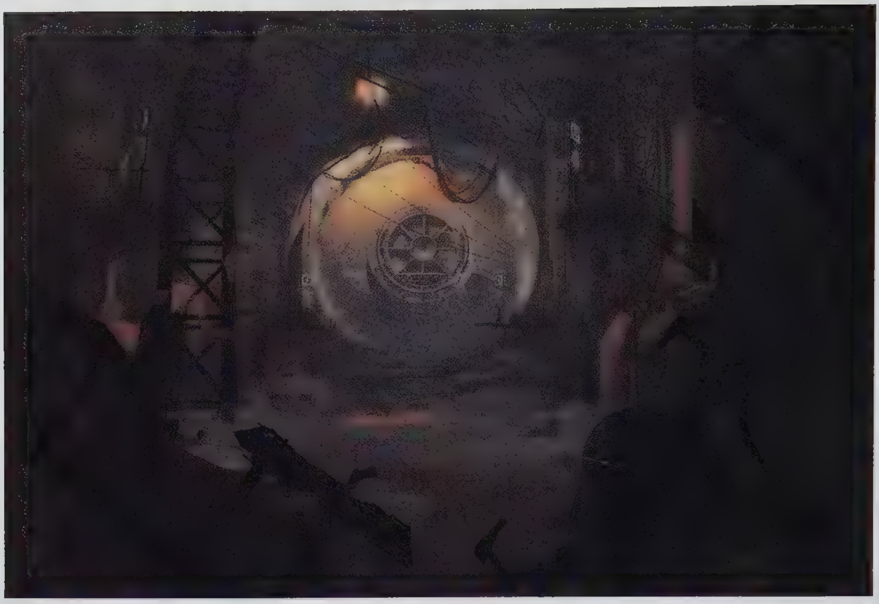
LD We had Aperture Science build it that way because we didn't want to deal with that in our physics simulation!

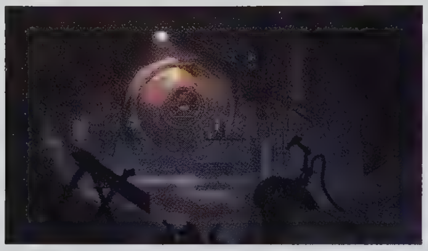
There's two copies of the room. One is a hull made out of clip brushes. Clip brushes are collisions made in Hammer by a level designer. If you jump somewhere you aren't supposed to there's an invisible wall. So there's a hull made out of clip brushes. Then there's this other thing that is the simulation made in Maya. These are put together, and the player's virtual camera is inside the clip brush version so you're able to walk on the floor and collide with the bed and fridge, but you can't collide with the little pieces.

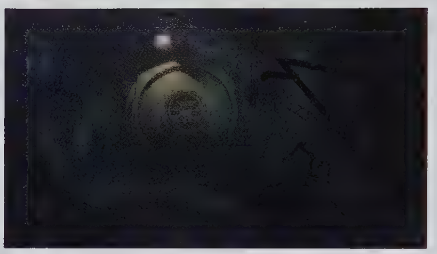
IS Yeah, because it's a combination of keyframe animation and realtime physics, we actually have to make sure some beams don't fall down and block you from jumping out at the end.

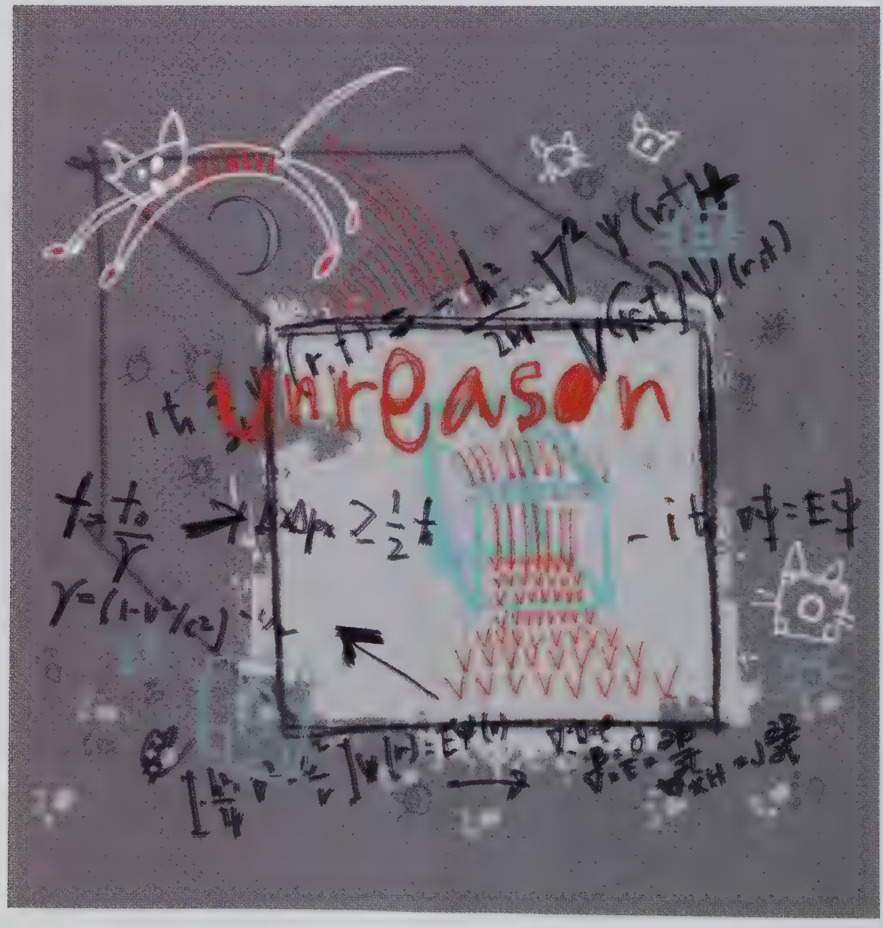












Are there any other elements of designing Portal 2 you'd like to talk about?

IS In Portal we had a lot of abstract gameplay elements. Things that just did things. There was no real explanation for a lot of it, like the fizzlers and the shapes. It was exciting to look at but there was no explanation. I remember when we started working on the underground area, we had to come up with everything in the game as an old version. You had to explain it in terms of how it would work. So you see cables and poles and things. It was an interesting design study, like to make an old version of the box.

LD Sometimes it's fun to reverse engineer things. Sometimes the level designers come up with something gameplay oriented. They give us these levels and say 'make it pretty' and we're like 'What's this shape? What's this thing? It glows!' So we're having to justify everything based on reality.

How much collaboration was there between designers and artists?

LD You give it to them and I think it's like a test of how you can draw the line between believability and how it fits into the fiction and how it looks aesthetically.

Were there still technical limitations for what you can model and put in the game?

LD Tools I think are a limitation sometimes. We're working with an old engine relative to some games that are coming out. There were some constraints with the engine. For instance, you can't have glow and bump map on the same material. Little things like that. There's gameplay constraints which you sometimes run into before you hit technical constraints.

IS I look forward to when triangle count and polygon count doesn't really matter anymore. We could make this table with 30,000 triangles and a 2K texture. Valve has been good about making things work on older machines, so it does matter for us.

LD It's a surprisingly significant percentage of our customers who have lower end systems, so we always have to make things with lower poly counts. We've had to cut so many textures from our levels. When you want to have a cave wall that gradates from dirty to clean on the bottom, then back again on the top, that's not easy to do because you have to use like four textures. It's not just visual, it's just fiction too. Oh the cave is leaking lime so the walls are clean, but the floor is dirty because of all the ash.

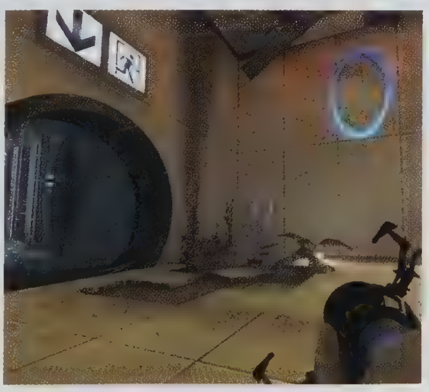
Why orange and blue for the portal colors?

LD They're opposite sides of the spectrum. And maybe for color blind people too.

IS People are studying this problem, because there's a percentage of people who are color blind. It's definitely a consideration for us. I think it's worth spending money and time on so everyone can have the best possible experience.

Who is Hoopie?

In the GLaDOS chamber, when you walk up to GLaDOS the first time you go through, if you look on the ground before you get to her there's a ring. That's Hoopie. He's a character. His name is GLaDOS_Debris_05. At the end of Portal, when GLaDOS gets destroyed and all the debris come falling down, Hoopie lands in front of you and rolls. But he's in Portal 2! We're convinced once people know about him he's going to be huge! He's our favorite character.

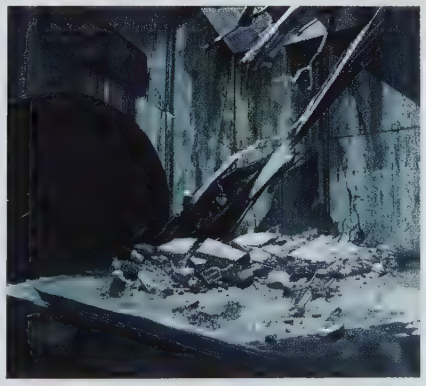


Who at Valve is the best at Portal?

IS I think Kyle has the current speedrun record. It was 1 hour 56 minutes or so!

If you were Cave Johnson what would you have the lab boys invent?

IS I remember somebody asked Kim Swift what she'd do with a portal gun, and she said she'd just use it to go from home to work. I think that would be the coolest thing for me so I don't waste so much time in the car! As far as new things are concerned, I think I want to be invisible!

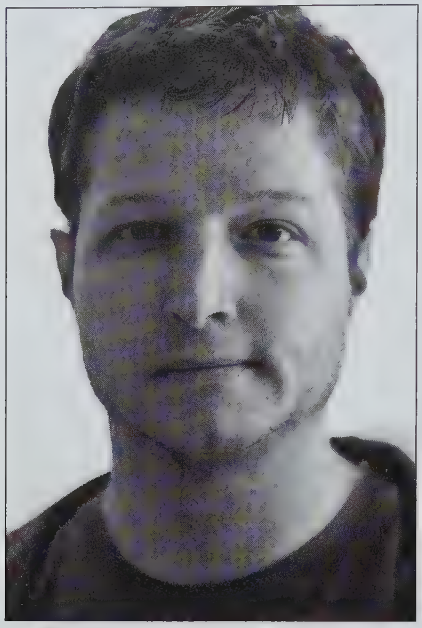


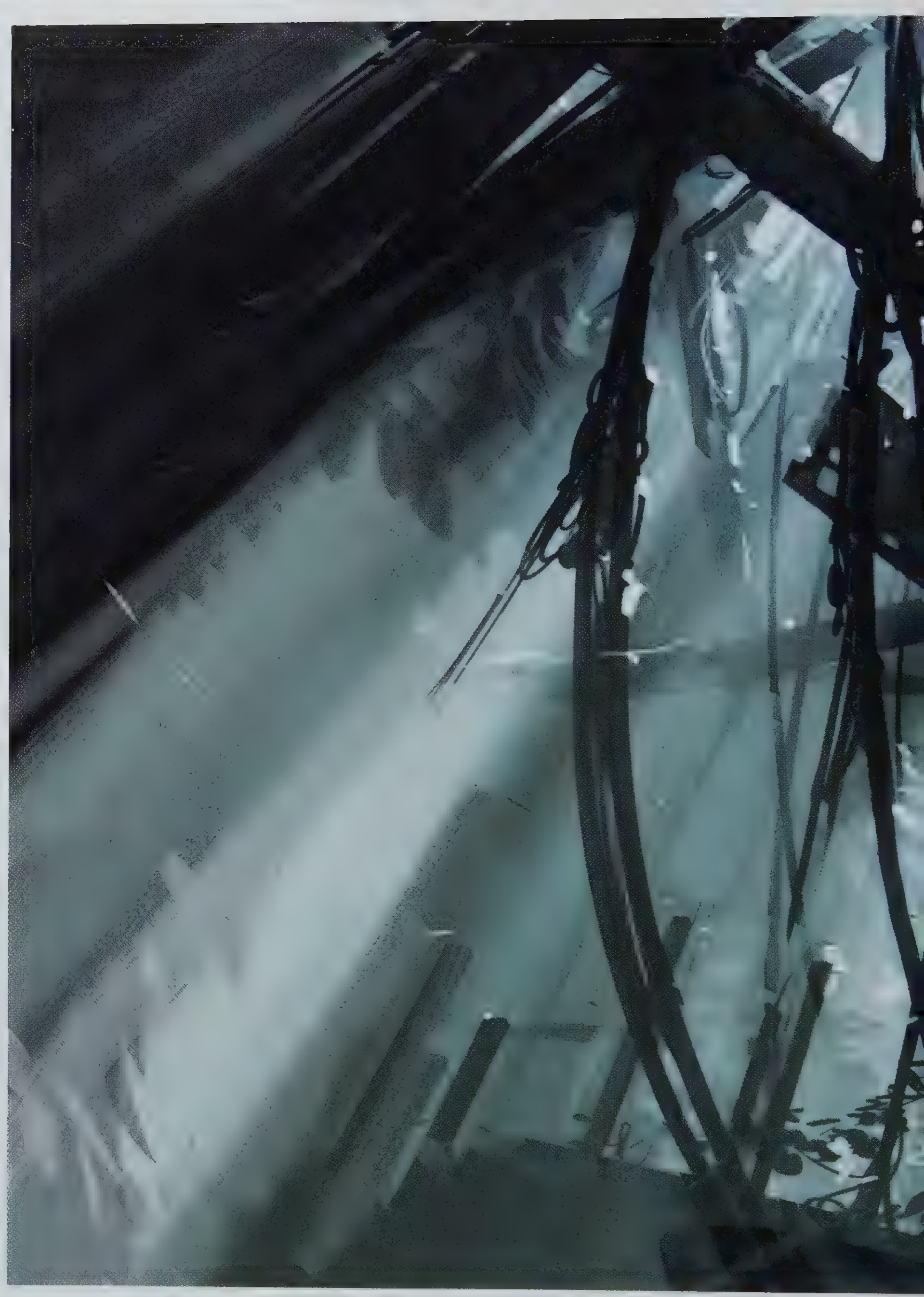
Who would win in a fight Chell or Alyx?

IS I would say Alyx for sure. I know you saw those Episode 2 videos. She would certainly win.

Garret Ricky

Level Designer





When did Valve start development on Portal 2?

GR I'd call it three years ago right? Right after the experiments?

JG Yeah we got together a small group of people, there were six of us maybe.

What are the experiments?

JG Gameplay prototyping. Just concept experimentation.

What was the catalyst for that?

GR Portal was really successful. It was clear people wanted more of it. As soon as the orange box was out the door we were watching the way people were enjoying Portal and knew we had to make another one.

JG I don't think with the first game there were any plans for a sequel, but there was a lot of potential content for a much bigger game. There were a lot of good ideas that didn't make it into the original, so we just had to go do that. This didn't mean making harder puzzles or adding more fling puzzles, or just adding more objects and mechanics that didn't make it in and that we wanted to explore.

What kind of gamer to you want to enjoy Portal 2?

GR We want to keep the original audience, but at the same time this is a game where we can expand the audience. It doesn't take a lot of twitch skill. You can get all sorts of gamers into Portal. We have a lot of anecdotal stories of people who work here of even just friends of people who work here playing through Portal with their girlfriend or some other person in their life, like their parent or someone else who wouldn't usually play games. It's all anecdotal, but it certainly makes us think we can expand the audience with Portal 2.

Where do the action elements like timing puzzles and turrets fit into that philosophy?

JG I think we scaled back a lot on timing and twitch gameplay.

GR Yeah, we do want to grow the audience and we don't want to make it impossible. We don't want you to know how to solve a puzzle but not be physically able to do it. I don't think we've met anyone who thinks that's fun.

John Guthrie

Level Designer

JG Yeah that was a good way to get a puzzle cut. That was the worst, when they knew what they needed to do, but they just couldn't for whatever reason.

Which comes first, the story or puzzles?

GR They don't constrain each other. I think they build off of each other. We'll make a puzzle, and it's not like 'This isn't fun let's cut it' we're thinking more in terms of what we can add. A lot of the puzzles were drawn up very differently from how they shipped. Sometimes it's because the story informed it. Maybe we have the opportunity for Wheatley to do this little scene that makes the level better.

JG A lot of the puzzle design would also inform the training for puzzles. If we built something really difficult that included elements some people weren't familiar with, we'd have to decompose it and find the path that the player would need to succeed in the puzzle. Then it was just a matter of going in and getting the pacing correct. Pieces go in, pieces come out, and what's left is the game you have now.

How did the large number of story sequences end up affecting the pacing?

JG What do you think? Did we insert these story segments where there was a huge track of puzzles and we thought people needed a break?

GR Yeah, I think it was an easy thing to weave in. It was also a function of team size. You know, we had the people to add in those interesting art vistas for this big story firepower. Portal 1 probably could have used that. If there were segments where you could decompress you'd probably be better off. So we had enough people to do it, and it was a good thing to add to the game.

What were some upgrades to the engine made for Portal 2?

GR The paint required an overhaul to get that to work. It's a whole new system. There's lots of optimizations to run on all the different platforms we're on. Students at Digipen made a game called Paint and it used three different types of paint. You'd cover the wall in it and solve puzzles. It was very Portal-like. We played around with having portals and paint in the same room early on, so implementing that in source was a new feature for Portal 2.

JG So the four guys that worked on the paint game work at Valve, they did a lot of that work. Then they went on to become full developers and just build levels.

How do you balance skilled vs unskilled players?

JG The new objects go a long way in putting all players on the same playing field. We don't want to build the game to pick up where the previous game left off. We don't want you to have to come in knowing how to do these infinite flings. So there's the new objects. Some people pick it up faster than others, but generally everybody is going to have fun exploring these new mechanics.

Is the level editor you're releasing the same thing you guys were using to build levels?

JG Yeah it's the same thing. Hammer keeps evolving. We release an SDK to the public, but we keep improving it internally while we're working on a project, so when we ship we throw it over the fence and let everyone go for it. We'll also do that with this product.

GR The scripting is a new feature.

JG Oh, that was in Left 4 Dead.

GR Yeah that was in Left 4 Dead. A lot of the dialogue is much more interesting and dynamic now that we've done a lot of it in script. So you'll find that Wheatley and GLaDOS have odd little reactions to quirk cases, and we can build that really quickly.

JG Scripting is a programming language for level designers that doesn't need compiling. You just run it and the game handles that at runtime. I expect there's a lot of fun things level designers will be able to do.

The decisions the characters make when they talk was determined through scripts. All the game logic of determining who talks was driven through these text files rather than something in the map.

Buttons were originally written in C code, but we made a version that worked in script. So level designers could take models that are already in the game and find ways to imbue them with properties using scripts. Previously you had to have dev studio, and know how to compile DLLs and write C code to do that.

Did the design aesthetic of the old chambers affect the way you designed the levels?

JG I know a lot of those designs were originally built just like the first levels. Later there were opportunities. You're inside this giant sphere now, so we could change the fling distances or ways you navigate through. Those things were taken advantage of, but they were built just like all the other levels.

GR The puzzles created were just agnostic to where they would be in the game and what time period they were in. The story just helped inform us. I mean, it was created in the 50s so that gave us this excuse to do these catwalk traversals and all these vistas you could build now around and in between these puzzles. But the puzzles were just what we designed.

How do playtesters affect your job in designing levels?

GR They almost are the designers! We're just barely filtering the information as it comes back to us. It's all about what the customer likes. We never give them hints. You're just observing them. You want to see how it breaks, because it will break. The next puzzle you make won't make the

same mistake. It's education. It makes you a better level designer. Watch 100 playtests of Portal, and you'll be able to design a level. Come into it thinking you can design a level without watching playtesters play it, or having played it yourself, you're going to make mistakes.

JG We have a system which records all the sessions, and there's all this data it collects. How long it took them to complete the chamber, when they die etc.

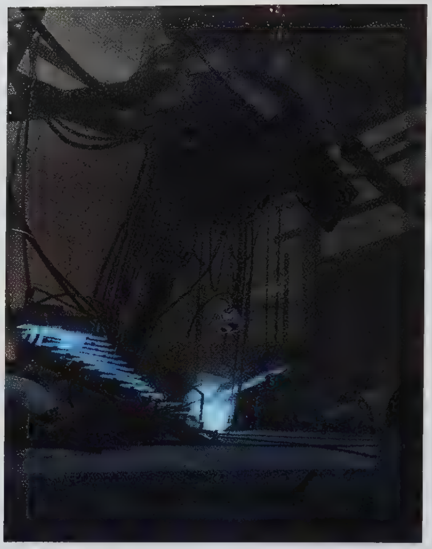
GR You have to watch that though. You can't tell if that's a fair death or an unfair death just by the stat, you have to watch them play. We have a really cool high-tech eye tracker that marks where the user is looking.

JG You learn a lot about watching people play off different skill levels. Someone who has never touched the controls or the game is going to teach you something different than an expert.

How was the Ping Tool born?

JG I know exactly how that came about! "Over there! No over there!" conversations. They had no way to indicate over there, so they'd just shoot their portal and their portal would be making the gesture, so it was natural to add this tool to let them ping the world. How long did we play before we added that feature?

GR Two tests?



Any elements that didn't make it in?

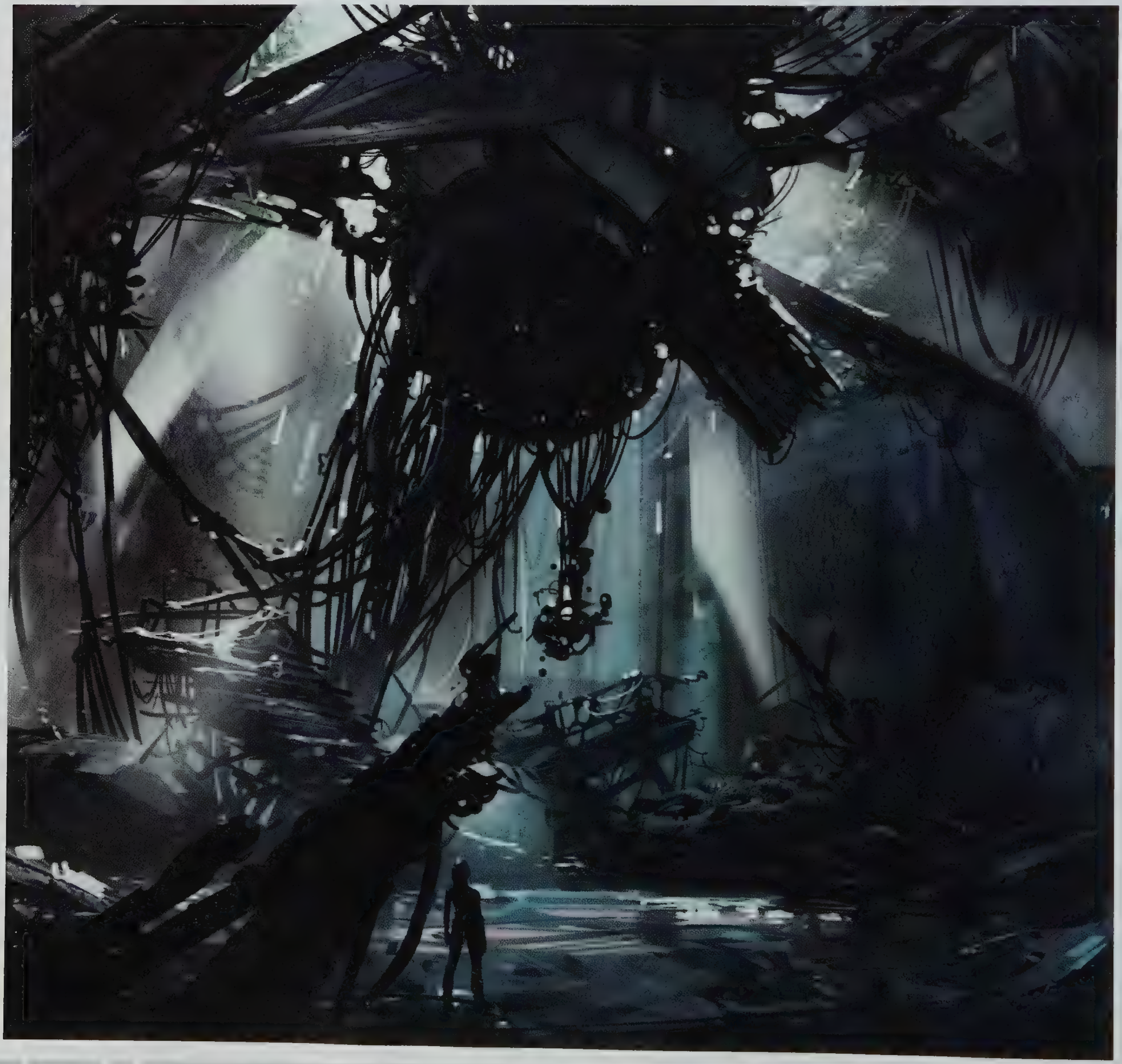
JG We had different paint types that didn't ship. There was sticky paint. The original paint game had sticky paint. It's like a glue. Cubes would stick to walls and that sort of thing. It was a fun experiment.

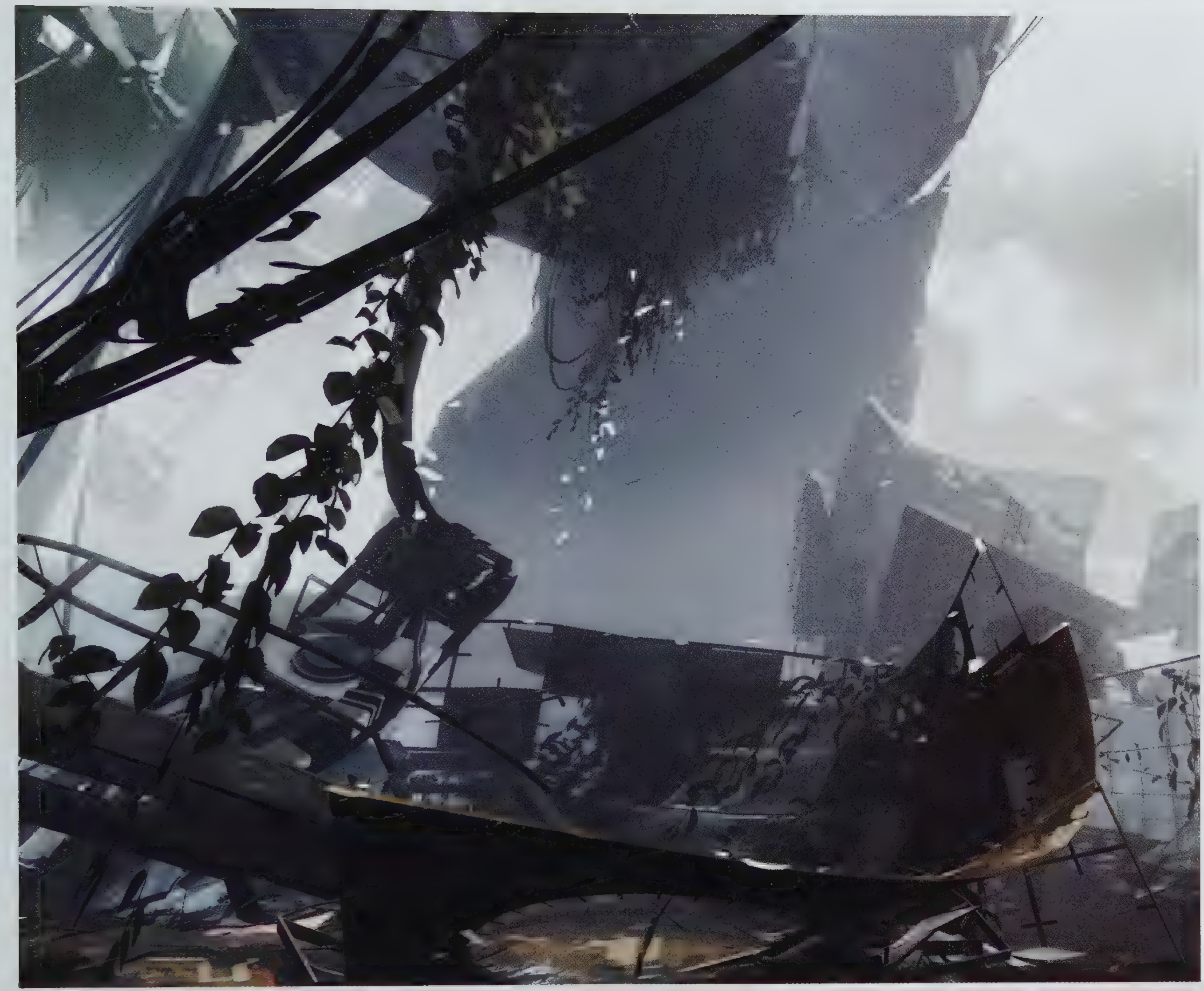
GR It kind of worked, but it wasn't worth finishing.

Who at Valve is the best at Portal?

GR I'd say Tejeev. With his speedruns.

JG He did all the achievement testing, and there were couple that required you to beat it really fast. He probably has the most skill at this point. Yeah, the guy who got the test the achievements job became the expert!





If you guys were Cave Johnson, what would you have the lab boys invent?

JG A combustible lemon! That's a great question.

GR Portal 3, so I don't have to!

Who would win in a fight, Chell or Alyx?

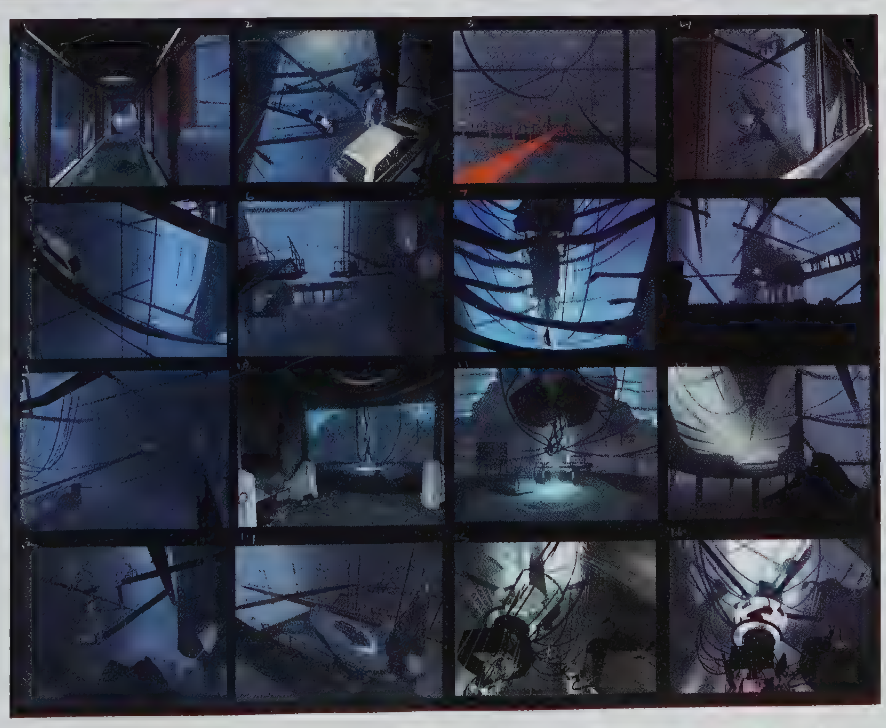
JG If Chell had the portal gun it would depend on where Alyx was standing. If it was just fists, I'd put my money on Alyx.

GR I want to find out. Let's see this exercised.

If you could place two portals in real life, where would you put them?

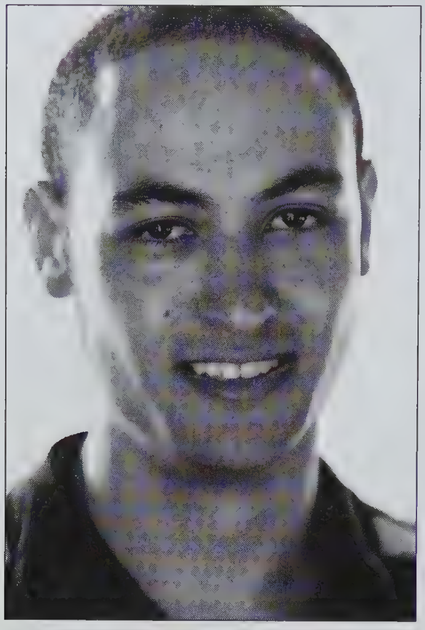
JG It'd be my wall and Hawaii! Or the kitchen. Right next to the coffee machine. If I could shortcut my walk to the coffee machine in our kitchen I'd do that.

GR I'd gain 20 pounds from not walking!



Jeep Barnet

Programmer



Was Portal your first game at Valve?

JB Yeah, Portal was my first game at Valve. I actually did one other game in the industry at another company called Sandlot Games.

What was your programming role in Portal 2?

JB I'd been doing Left 4 Dead and other stuff, then I rejoined the Portal team. There's a lot of network optimization type stuff like making sure the game doesn't feel laggy and that it plays the same on split-screen or over a network in all these different configurations and making sure cross play with the PS3 works. Dave Kircher, who's another one of the main programmers, did a lot of the netcode before I had a chance to start working on co-op.

What challenges were there specifically for Portal?

JB It's pretty crazy you know, because Portal uses kind of a 4 dimensional non-linear space where you're traveling from one point to another that's completely not connected. This is already kind of deep in the physics system and player movement code and really breaks the rules about how traditional 3D space works.

When you start working on networking, a lot of people don't realize there's a heavy manipulation of time that goes on, where the server has one clock that thinks it's one time, and the client has a clock that thinks it's a different time. At a certain point, the client sends its message to the server and all the things the client did happened in the past, and the server has to resolve how that makes sense by rewinding and fast forwarding essentially. When you add that non-linear space in that non-linear time you not only have to warp them from one position to another, like we normally do in Portal, but we have to work them backwards and remember where they came from. If the server lost a packet from the client, it'll have to say 'You think you did teleport, but I think you didn't' and we need to know where they actually end up.

What does placing a portal do to the 3D space?

JB When you place a portal, it creates an object in the world that says on this flat plane, we're going to render an image of what's on the opposite side. The other thing that's complicated is that as a player approaches the portal, they're always on one side of the portal or the other. The other half of the player is kind of this fake object

we're rendering. We need to slice the portal plane, and duplicate exactly whatever animation and position you're in so that it's on the opposite side. The other major thing that happens is it takes a 3 dimensional snapshot of everything near a radius of the portal, all the physical surfaces and objects. So it takes all those from one side and all those from the other side and glues them together in this kind of hybrid 3D physics object. And then it cuts a hole in the middle right where the portal is. So whenever a player is near a portal, they're checking collision with that messed up 3D object as they pass through, then when they get far enough away from the portal they go back to the real physics. It's all smoke and mirrors, but works out to be a pretty seamless effect.

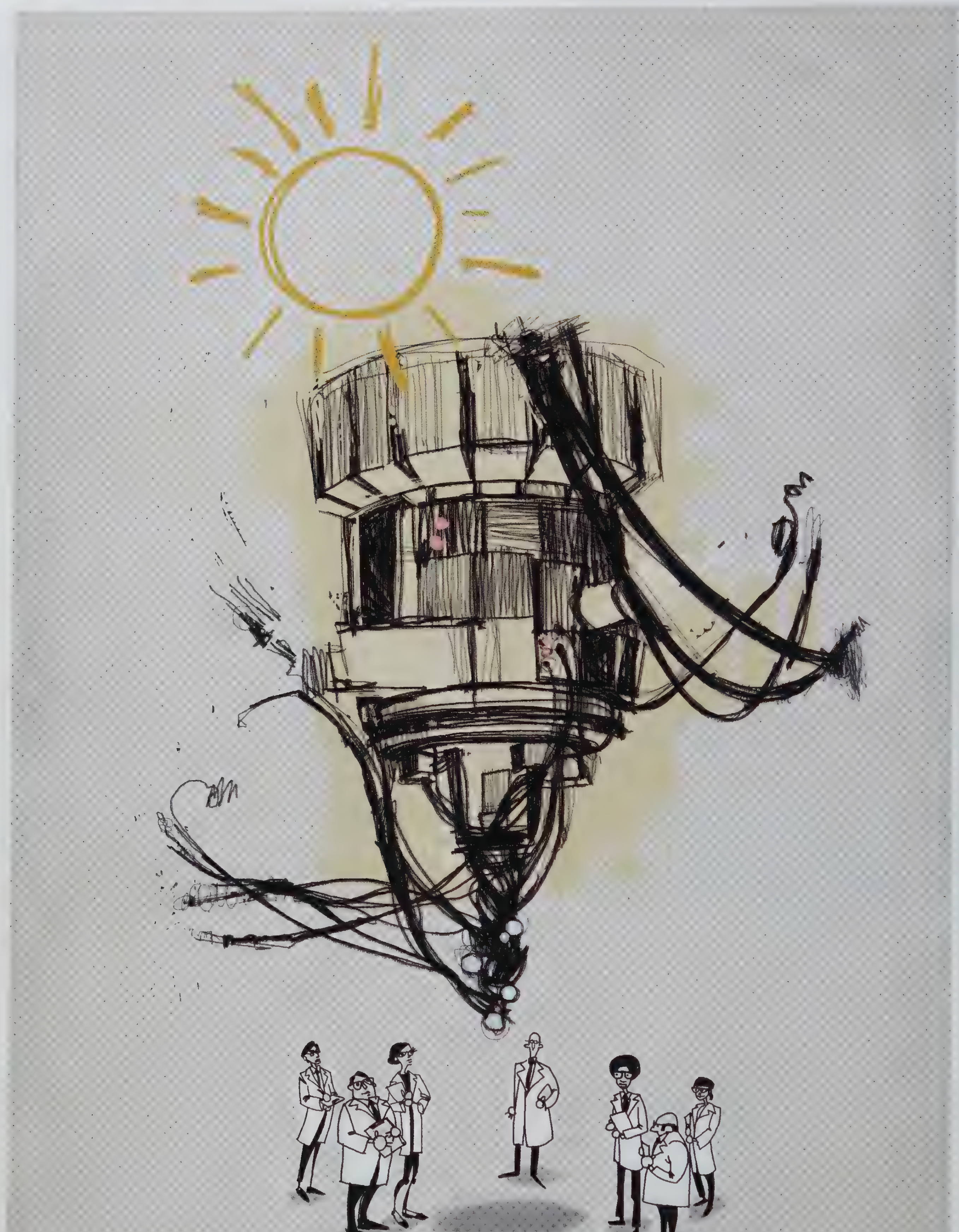
What upgrades were made to the source engine for Portal 2?

JB There was a lot done with our lighting system. We do a lot more with dynamic lights and dynamic shadow casting. Almost every level in the game has a strong focused light that casts shadows. We can have them moving around and you see that with Wheatley when he uses his flashlight. You can see the shadows stretch and squash and it's really different than anything we've done before.

We've added an impostor type system, which essentially allows you to take an object that's repeated in the world and render it in a quicker way. In later sections of the game, you see the mechanical arms, hundreds even thousands of them way off in the distance, so it allows us to do those types of effects. We can make much larger spaces and add an epic feel to them.

We did a lot of work to make Wheatley's animations work out. We did a lot with how he could express emotion by moving his eye and moving his parts to make the rigging of those systems easy for animators, almost like a puppet.

The way portals render in Portal versus Portal 2, even though it looks the same, the effect was really redone from the ground up for multiplayer where we have four portals rendering. It's actually more than 4 portals, because if you see a portal through a portal, then that's another portal! So in multiplayer,



you can have up to sixteen on a single screen, and when you're playing splitscreen that makes it up to thirty two. So we did a huge amount of optimization to make sure that not only that portals are rendering quickly, but all the things that are rendered through portals are rendered super quickly, because it just gets insane how much rendering we do at a certain point.

There's no 'bunny hopping' anymore.

JB Yeah. There was the accelerated backwards hop. Yeah it's funny, we had a fix for that with Portal 1, but at the last minute we were like, eh?. For the normal player it doesn't affect their experience, it's not something they use, but at the same time it creates all this new cool gameplay that speedrunners use. In some ways it just creates a whole new type of game for them.

Fixing it wasn't exactly an intentional decision. We fixed it in several of our other games, for example Team Fortress 2, because it's a competitive game and we don't find that using that skill is as important as using your shotgun properly. Since everything we do at Valve uses a shared codebase, that's just what it inherited.

What's the deal with the science cooperation points?

JB We thought it was just a funny thing where GLaDOS has some ways of pitting you against each other in her own neurotic way and thought it was a funny way of doing that. It was interesting, we tried a bunch of different ways of doing it, where sometimes it was more structured, where whoever pushes the button gets the point for example. People were starting to figure it out and try to game that system and get the most points even though they were completely arbitrary.

We found through playtesting that people just didn't enjoy that direct competition as much. So we started to do things like having it so that if blue pushes the button, blue gets the points, but if orange pushes the button, blue still gets the points. Then players started to catch on and sort of discover they were meaningless and would enjoy it more when they were in on the joke.

What about the 'disasters averted' stat?

JB Those are completely randomized. Just another joke!

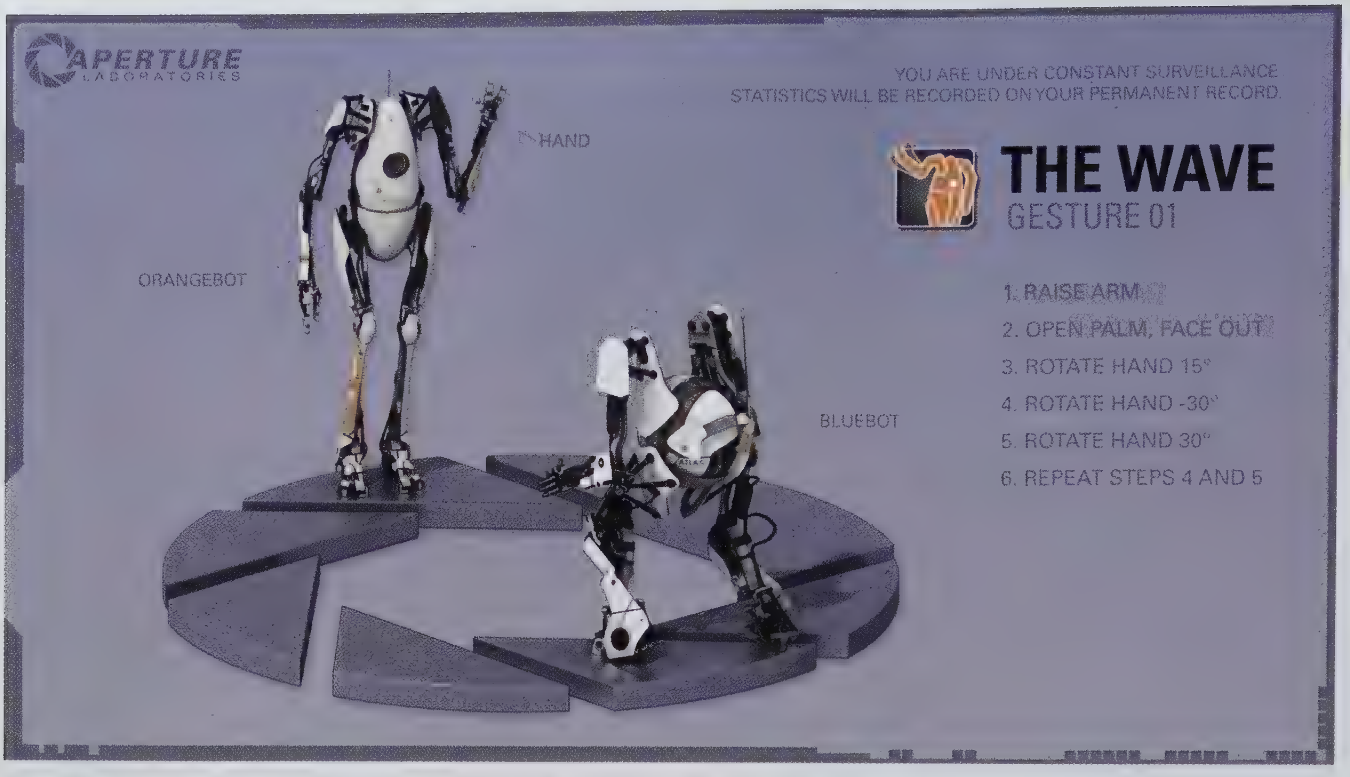
How were gels integrated in to the game?

JB The gels come from two places. One comes from the tag team from Digipen. They made a game [Power of Paint] that used gels to solve puzzles, so we hired them and put that into Portal. The other part is the actual rendering tech. Originally we were working on it as an experiment, just figuring out what we could do with it. We tried a bunch of different experiments, but the one that actually ended up working was how the gels look in Portal 2. They just have that really liquidy feel. It's one of those things we had to do a crazy amount of optimization on that to make sure it looked great on low-end systems or the consoles. At some points we weren't sure if we were going to actually be able to do that tech.

It's called ISO Surface Rendering, where you take invisible particles and wrap a surface around them so it's all squiggly and gel like. It was definitely tricky, there's still a limit to how much gel can be in the world. We had to figure out limits like how many particles we can have at once to render an ISO surface. If you have more than 2 particles, which is the smallest amount you can have, you're paying this huge up-front cost in terms of actually generating the surface, but when you go from two to one hundred, it's actually not that much more expensive to do the full hundred. It's about the same amount of work as doing any more than two, the way the math works out.

At a certain point, though, the physics simulation of actually having the blobs float through [an excursion funnel] gets quite expensive. This affects the design because this means that the gel you drop from the excursion funnels can only be up to a certain length. If we need it longer, we can drop the number of particles and spread out the drops more. It's actually built into the dispenser how many particles are in the world and it does some throttling to keep things smooth.

For being sprayed on the surface, it's just another render pass on the surface like a bullet decal. It also does detail textures, which means when you get close it can render a texture within that texture. That's where you get the little floating bubbles you see on the surface.


APERTURE LABORATORIES
YOU ARE UNDER CONSTANT SURVEILLANCE
STATISTICS WILL BE RECORDED ON YOUR PERMANENT RECORD.
HAND
ORANGEBOT
BLUEBOT
THE WAVE
GESTURE 01
1. RAISE ARM
2. OPEN PALM, FACE OUT
3. ROTATE HAND 15°
4. ROTATE HAND -30°
5. ROTATE HAND 30°
6. REPEAT STEPS 4 AND 5

Were there many gestures that didn't make the cut?

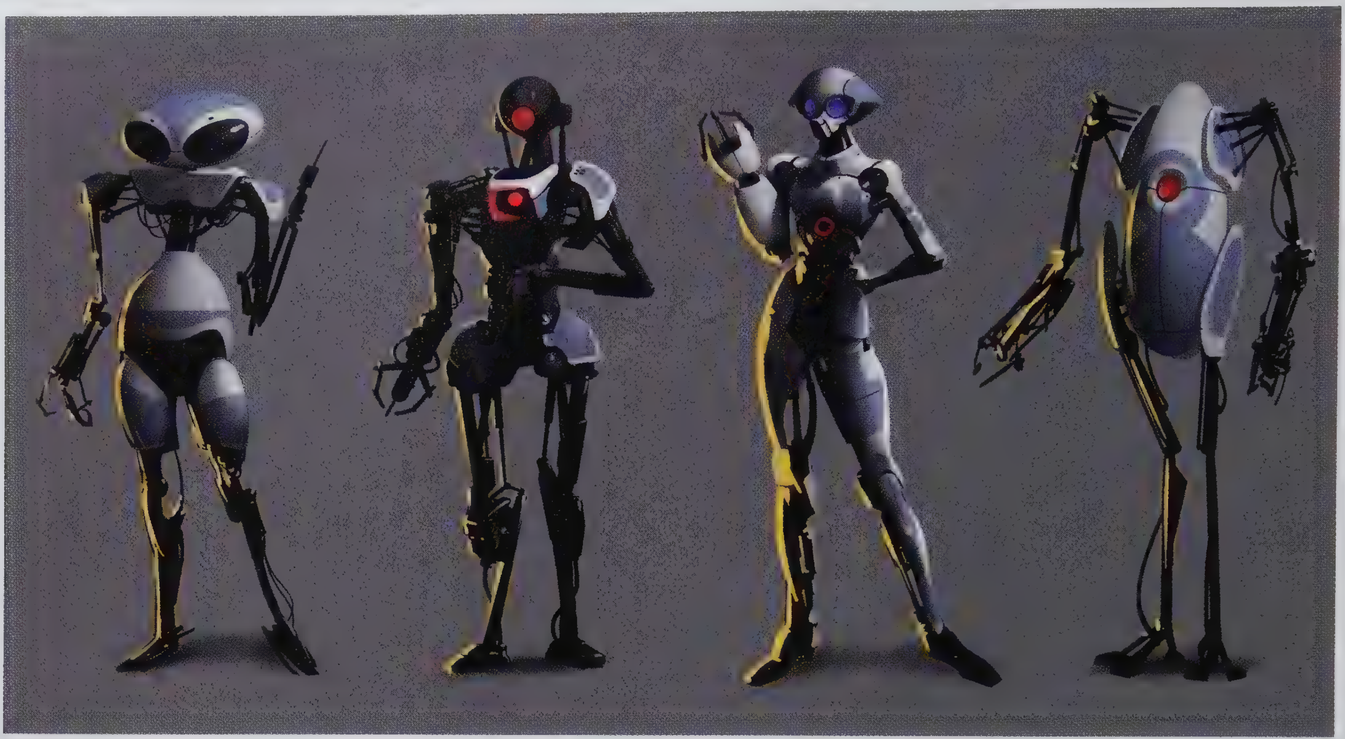
JB It's kind of crazy the amount of gestures we tried because some of them we thought would be fun, but then it turned out to suck. For example, a chest bump or something like that. It kind of looks cool, but when you put it in the game it just makes no sense. You think why would this happen, or from certain angles it just doesn't look right. We had one where it was a team laugh, where you'd laugh together and one would be patting the other on the back loony tunes style, throwing himself into the arms of the other.

We were still trying to figure out the personality of the bots. Were they these sterile and innocent automatons, or were they these thinking things having their own bright cartoony personalities? We kind of fell in the middle, but a lot of the gestures we didn't end up using kind of fell at those extreme ends.

In terms of the UI, we used the gesture wheel, which has eight selection directions. We tried stuffing more than eight in there, but it was just impossible to select what you wanted. We tried doing stuff where you could toggle between separate wheels and we also tried being able to customize the wheel, where you had a bucket of extra gestures you could drag and drop in. It turns out that once we got above eight, even if we had a UI that allowed people to select them, people just couldn't keep track of that many in their head, so eight ended up making the most sense.

Did you consider that having the partner automatically accept the gestures might be used for griefing?

JB Yeah, actually we were really worried about that and that's why we didn't do it that way at first. The first thing we tried was sort of a skill based gesture system. We had it where to do a high five you both had to be awesome enough to do it. You both had to be standing in the right places and do it around the same time. That was difficult because people didn't know exactly where they had to stand or what directions they had to face and there was no easy way to communicate that. So we set up the system where if you're in the right vicinity, you'll automatically slide into position and rotate in the correct orientation. We had it where if the first player chose a gesture, like a high five, they'd put their hand up and wait and the other player could select the same gesture within a certain amount of time to activate it. There was kind of two problems with that. One was that while the guy who initiates the gesture is waiting, he's essentially frozen in place for a long time and to make the high five happen more often between players we had to increase that time, which became more of a problem for the person who's just standing there. If we shortened the time, the other player wouldn't be able to accept the gesture in time. We tried having it so just pressing the gesture key would automatically select the right one; you didn't have to match it. We tried having in the center of the gesture wheel matching whatever a nearby player was doing. It worked for the most part, but when we did the tease taunt, where we wanted it to just grab the core out of the other player, we didn't want them to have to accept or anything. As soon as we added that one, everybody started saying it was their favorite gesture in every single playtest they did. As soon as they had that one they didn't use any others, because the others were too hard to do. So once we had that interface we just decided to try it for the other ones and all of a sudden people started using all the other ones as well. I'm sure some people are going to use it to grief, but the best experience is going to be playing with your friends.

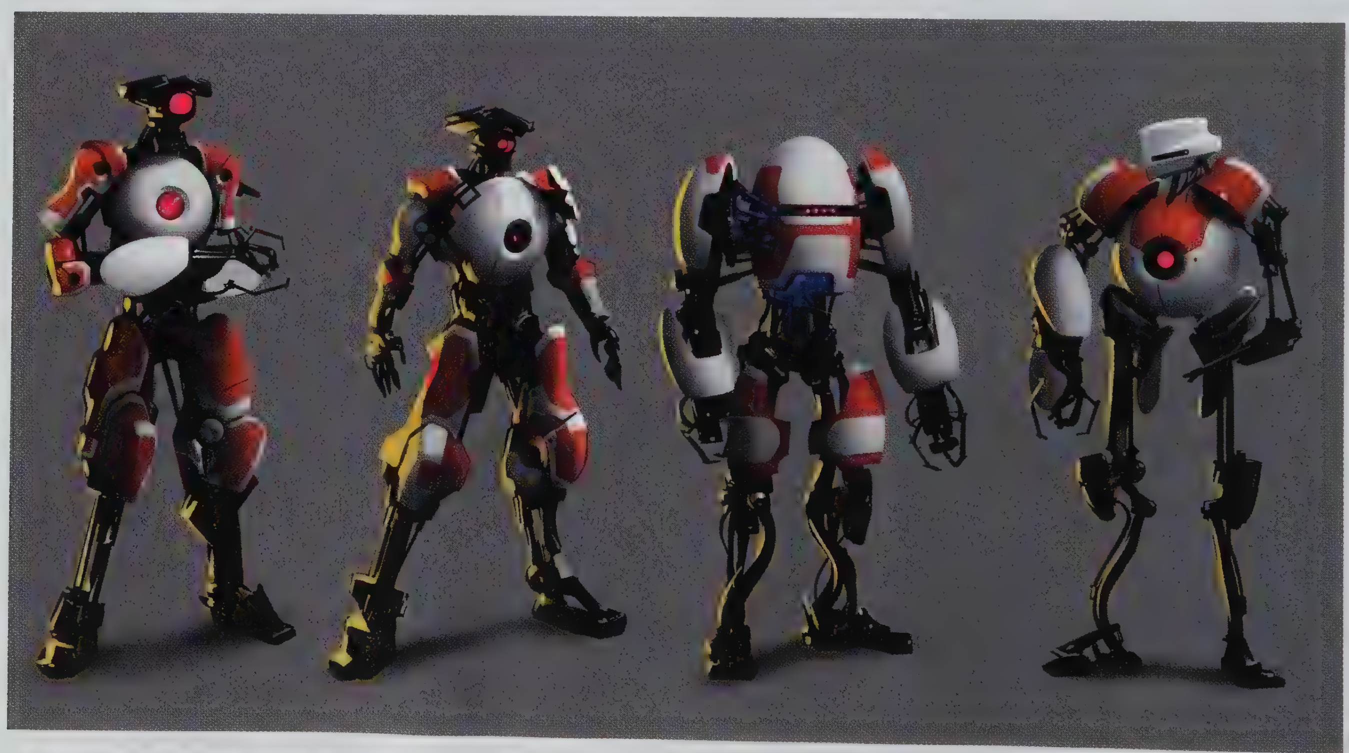


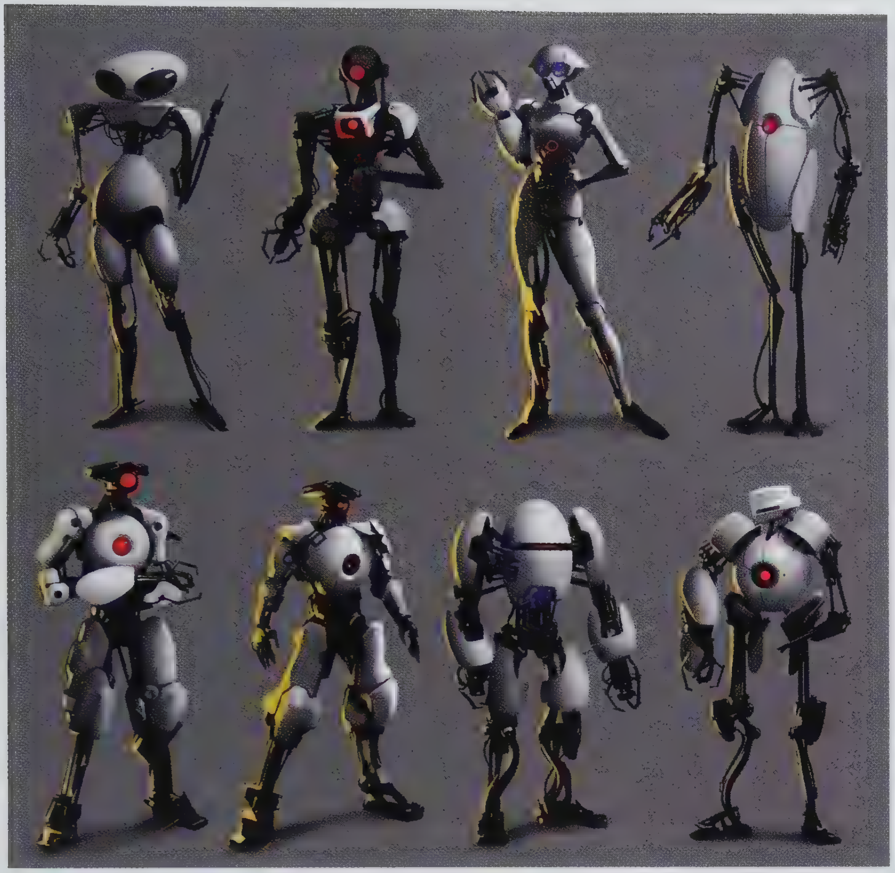
What was different about designing puzzles for co-op vs single player?

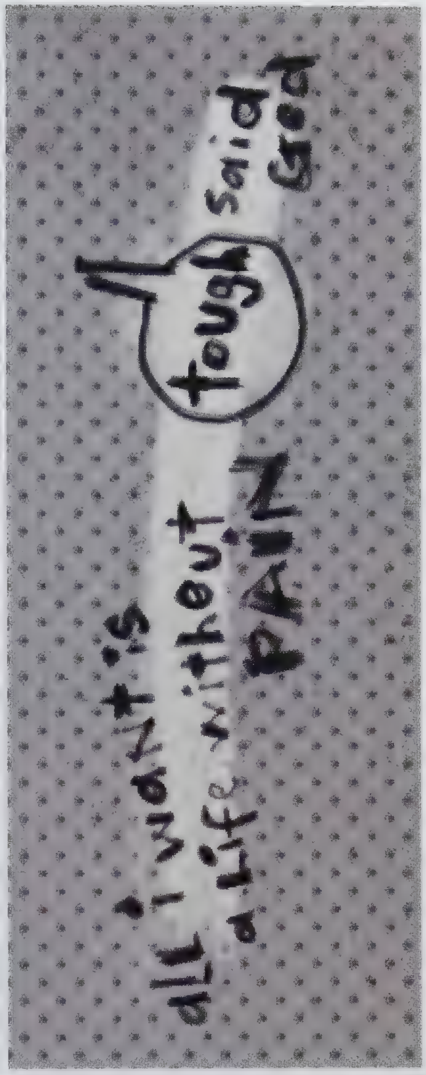
JB Yeah there's a couple things. In single player, we find that people get what we call puzzle fatigue. Once you start solving enough puzzles in a row, at a certain point you're just like 'my god my brain hurts', or 'I need food badly' or whatever it is. You need a break from that. You have nobody else to talk to in the game, so we need to provide you with some break from the puzzles. [Portal 1] didn't have that, and the main reason is because the game was short enough, so that by the time you reached puzzle fatigue you were actually done with the game.

So with multiplayer, you always have your buddy there that you can talk to, which in some way gives you other stuff to do besides thinking about the puzzles. We also found that players would create their own pacing, their own breaks. For example, if they were tired with the puzzle they would just start goofing around in the chambers and after 10 minutes of goofing off they'd realize 'oh hey, wasn't there a puzzle here?' and they go back to solving it. So they kind of solve that problem on their own.

The other thing we found, was that if we did a lot of story exposition, like having GLaDOS talk to the player more than ten or twenty seconds at a time, they just started talking over her and to each other. They







were just not interested in standing there listening. So for the story, we break it up into much much smaller chunks.

In terms of the puzzles, the main difference is things you won't see in single player like being able to paint the light bridges. The reason that works in multiplayer is because you have one set of portals to manipulate the bridge, and one set of portals to manipulate the paint. In single player, with one set of portals, the puzzle is completely trivial. You either redirect the bridge directly under the gel, or you have a static bridge and you direct the gel directly on to the bridge.

Can you paint a light bridge with conversion gel, and then put a portal on it? Does that work?

JB The bridge isn't wide enough to fit a portal. When we started thinking about it we thought 'should we widen the bridge?' But then it wouldn't fit through a portal either. So there was this conundrum where we couldn't do that.

Why did you create the hub as opposed to a menu interface to select co-op chambers and courses?

JB One thing we started working on when I started working on the co-op, there were already some puzzles and because all the puzzles required four portals to solve, they felt a lot more difficult than single player puzzles. You'll have a better experience if you play through single player first. You can start in co-op, especially if one of the people playing has played Portal 1, and have them guide the other player through. The thing we'd find though, is that with the puzzles being so much more difficult, if players got stuck, it was kind of a quitting point. 'I don't know the answer, you don't know the answer, what do we do?' So we had this thought of structuring the game more like a recent Mario game, like Mario Galaxy, where you can go back to the hub area and choose a different puzzle. If you get stuck again, you can go back to previous puzzles with new things you've learned. So by giving you that choice you could jump in and out of levels and complete it as you go.

We set it up so that at every level there were two buttons at the beginning of the chamber, and if you both pressed them it would take you back to the hub. Basically, you could go back at any time. We tried that, and players knew that they could do that, but they never took that option. If they were stuck in a chamber they'd spend 20 minutes trying to solve it rather than go back, even if there were other options for them. Nobody was really interested in abandoning the puzzle.

The other thing we found was that it put a huge amount of constraint on the story, where there were these many tracks you could go through, in any order, and even jump between them midway. GLaDOS couldn't really have any progression in the way that she was talking about the story so that things built toward a conclusion. You could only have these individual jokes essentially. Because of that, we couldn't make an interesting story. We found going linear was a lot better way to go. We already had the hub from this way we had built the game and we found it worked really well as a level selection tool.

What was the inspiration for the robot design?

JB Yeah, a lot of the inspiration were the actual robots being built now. We thought about the actual pieces such as the actuators and joints and all that.

Why not go with two humans?

JB We started with humans, and it quickly became apparent that there was a logical problem in that if one player dies, does the level reset? If it does, that seems like a harsh punishment. So if one player dies then respawns, are they a clone? Another human? What do we do with the dead bodies that are left behind? If we want to hit them with a crusher, it doesn't seem like having gibs fly everywhere is appropriate, not just in terms of the age rating, but also the vein that people play in is really humorous and goofy. Suddenly throwing that in the middle just doesn't fit in the universe.

Going with robots really allowed us to play up the death animations and just making crazy stuff happen when you die.

Who at Valve is the best at Portal?

JB I used to be the best, but I don't think I am anymore. Greg Cherlin is pretty damn amazing at playing Portal. Dave Kircher, he's good in the cognitive aspect. He'll take your co-op chamber and figure out how to beat it with one player. In the original Portal, he'd do the least portals challenges and be like 'If I do this stupid thing I can beat it with 2 portals!'

If you were Cave Johnson, what would you have the lab boys invent?

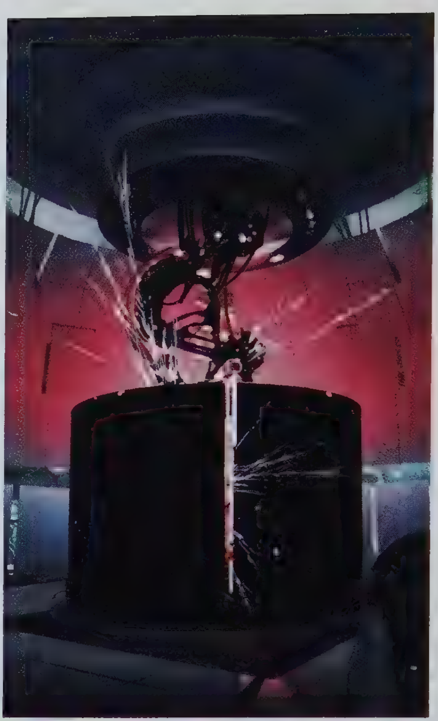
JB I don't know if I could answer that question!

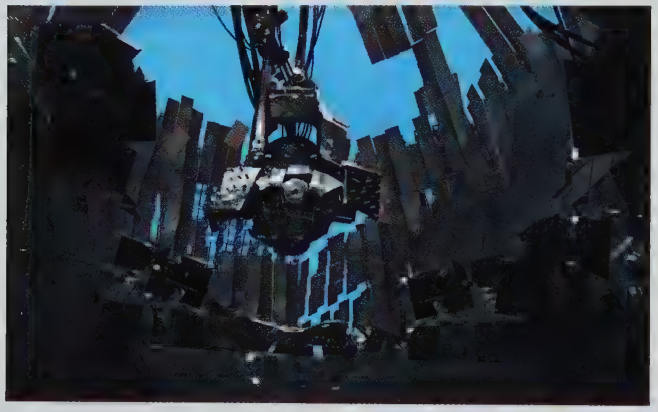
Who would win in a fight, Chell or Alyx?

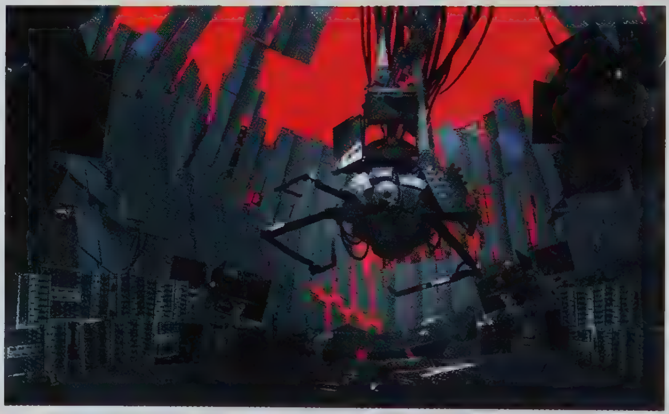
JB Definitely Alyx. Chell is a badass in her own right, and she's even got a sort of Ripley thing going on in Portal 2 which I like, but at the same time she's been in stasis so long I'd imagine she's kind of atrophied. Alyx is such a strong character in general.

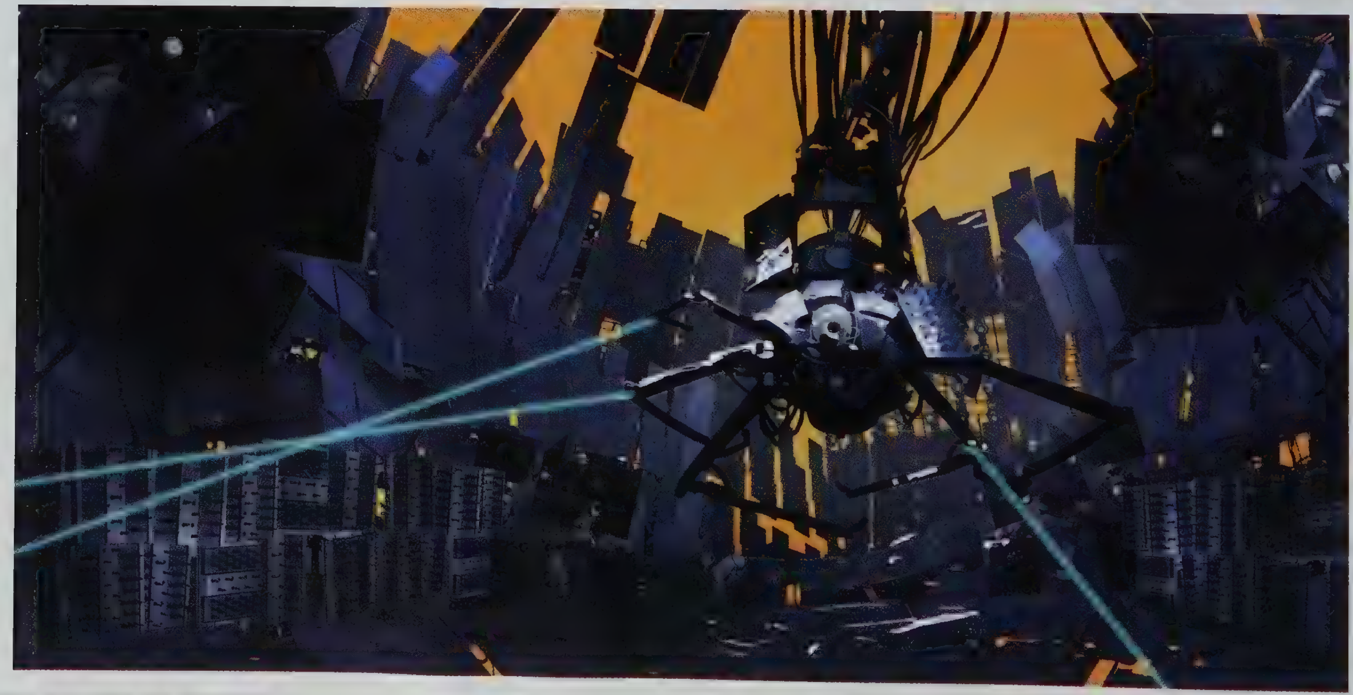
If you could place two portals anywhere, where would you put them?

JB I used to be far enough from work where I'd say I'd put one at work and one at home, but now I think about all the cool places I've traveled in Europe and areas like that. If I could travel between here and England, that would be super cool. I'd visit my friends all the time.



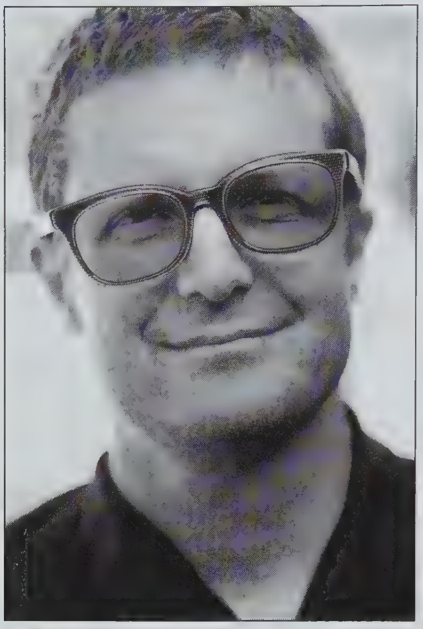






Mike Moraski

Composer



Tell us about The National and Exile Villify.

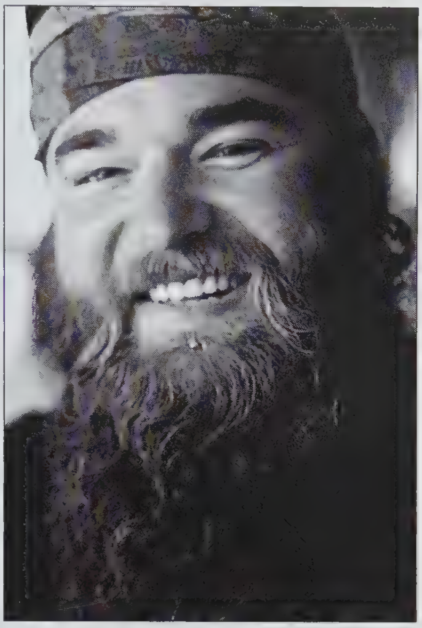
MM Oh right! Yeah, we knew that we wanted to bring in at least one more outside group of musicians to do some tunes for the game. I think they were fans of Portal and one of us knew them. You know, the classic Valve connection thing. Originally it was for a fake ending to the game. It was going to do this weird Easter egg where the game is over after 20 minutes. It was credit music for the fake ending. There wasn't time to do that, but we worked with them and changed the lyrics and put it in a Rattman chamber. They wrote the lyrics, but our writers went over it after the fact to make sure it was right for the universe. We were kind of looking for that dark mournful feel. It was one of those things where we had the plan, then the plan changed so we were like 'How do we make this work?' In this game there's a lot of music you can completely miss. That's sort of the point in a way. It means you can just step away from it and it's not imposed upon you.

How much of the music was synth and how much was live recording?

MM The only other live instruments in the game are voices. The idea of having the turrets sing came as one of those classic Valve long circuitous ideas that went through many people. I kind of shepherded it around, but I always let people come up with that idea again. In one of the early vocal sessions with Ellen, you know she was trained as an opera singer, Bill and I had talked about having the turrets sing at one point. So I said okay, while you're doing that can you also capture a bunch of samples of her singing all the scales and different consonants and vowels. I created a sample instrument and wrote all these tunes for the turrets based on all that from her voice. Then when we decided to put those in the game, we went back and recorded her singing it actually properly to the tune that I had written from the samples of her. So there are samples coming out of some turrets and her singing on top of that, but as far as live instruments go, that's all. Everything else is purposely samples. It's all done to sound slightly synthetic, even the orchestra stuff. It's meant to not be real sounding. All the music is sort of like it could have been created by AI or the personality constructs. Arpeggios, really mathematical-ish.

Dave Feise

Sound Designer



What can you tells us about the little jingles that play when you step on a faith plate and run on gel?

MM There's a couple different things. One of the things is that we knew from the marketing and product management standpoint, we wanted some musical surprises, like the Coulton song from Portal 1. We have that, but I knew that wouldn't be very surprising and everybody on the team knew that wouldn't be very surprising. Then he tweeted about it and it was really not surprising. So when I went to put the music in the game I said, okay we've got these puzzles, so you kind of don't just want music playing through the puzzles kind of distracting you and making you crazy. We also had this thing happening where on the one hand when you first wake GLaDOS up after all those puzzles, there was a certain element of fatigue there. That, mixed with the writers wanting the tone of the music to be pretty dark and not to be too goofy, but balancing the humor with that, I felt like it would be a good idea for puzzles to have some fun music. I thought, the constructs in the puzzles enjoy you being there, even though they are deadly dangerous to your well being They're happy you are there, otherwise they're just alone. They're happy to have a test subject so to speak. So it was a mixture of those concepts and trying to figure out how to put some music in the game and not have it be like 'Make it stop!' I think the first one I did was that first faith plate, because that vision of the cube bouncing was just so funny to me. So once I did that and everybody on the team loved it, then I went crazy and it's just everywhere.

What is the sound created by the Repulsion and Propulsion gels?

DF So for the gel stuff I really wanted it to be fun. It was new to us, new to Portal. I'd never played the Paint game, so it was new to me. It was a fun mechanic so I really wanted the audio to be fun. Those two sounds went through a lot of iterations. There's fun, but then there's far too goofy. I started off with everything I could think of that sounded sort of bouncy and mashed it all together and it ended up

sounding like the jump sound in the Mario games. It was way too goofy! It ended up being harp strings and mouth harps and a big rubber bouncy ball mashed together. I toned it back and had a lot more low pitch and somewhat sort of low key. Like, when you bounce off of a diving board and it goes 'Do do do do do do' [motions with his hand to mimic the diving board flapping]. There's a big metal bar that I got and suspended on some bricks and plucked it like a diving board, then added in some synth elements to make it a little ethereal sounding.

With the Propulsion gel, the idea was to take the whine of the aircraft jet starting up as it ramps up over a long period of time. I wanted to condense that to under a second. There was some synth stuff in there and I don't remember what else was in there!

Where do you record?

DF We record a lot of stuff here. I do a lot of out in the field recording. We recorded a bunch of Foley stuff over at Bad Animals in Seattle.

How closely did you work with Jonathan Coulton on the ending song?

MM I communicated with him pretty early on just to let him know where we were headed with it, because I knew there'd be a lot of pressure right, after doing the first game, and also just wanting it to fit and feel good with everything. Eric [Wolpaw] and I talked to him extensively early on, and we got him a copy of the game. I pointed him to places where there was already music in the game so that he could hear what was there.

The original idea was when you leave then you get stopped by the turrets and it looks like they're going to shoot you, the big turret orchestra was actually going to be his song. But then we kind of hit this scheduling point and we realized it made more sense to make it the turrets' song to you and put his song in the credits. At that point we had been communicating these constraints, like 'It has to be in this key' or 'It's going to be a turret orchestra', so we would have been producing the actual music for it. So when that shifted, we kept him in the loop so he knew where his song was going to be.

The portal sounds changed a little bit from the first game. How come you decided to make a change like that?

DF I tried early on to do a whole new set just to see what it was like, and everybody hated it, I hated it. There was some rebellion. If I had left it in I'm sure everybody would have gotten on board eventually. Everything except for the firing noise is new. It was based in 'How would this work as a technology'. There's some rock elements in there to give it the sense of destroying space and actually creating a portal. The gun itself was too iconic to change.

What about the voice of the robots in co-op?

DF So we started and had this idea for early on that we wanted them to be very emotive and to have a sort of emotive quality to their voices without having actual words or dialogue or anything. We tried a whole lot of in-house talent to give us those sounds with character without being human. We didn't find anything we liked. So we went to LA and recorded Dee Baker. He's done a lot of stuff for Clone Wars. So he gave us all these characters. We settled on two we liked.

My designs for the blue bot stemmed from early on in the design process, the tall one was high-tech and looked like a turret or like a next-gen turret body and the blue one looked a lot more mechanical. He looked more old and archaic, so I wanted him to sound clunky. The technology you heard from him should be recognizable to our ears, whereas the technology from the tall one should be more future-tech. I liked that discrepancy in the sound.

Why smooth Jazz?

MM Ohh, that joke was probably one of the first jokes in the game. You know, smooth jazz is just funny. It's not just the smooth

1940

SALT - ASBESTOS - CURTAIN

APERTURE

SCIENCE INNOVATORS

APERTURE

SCIENCE INNOVATORS

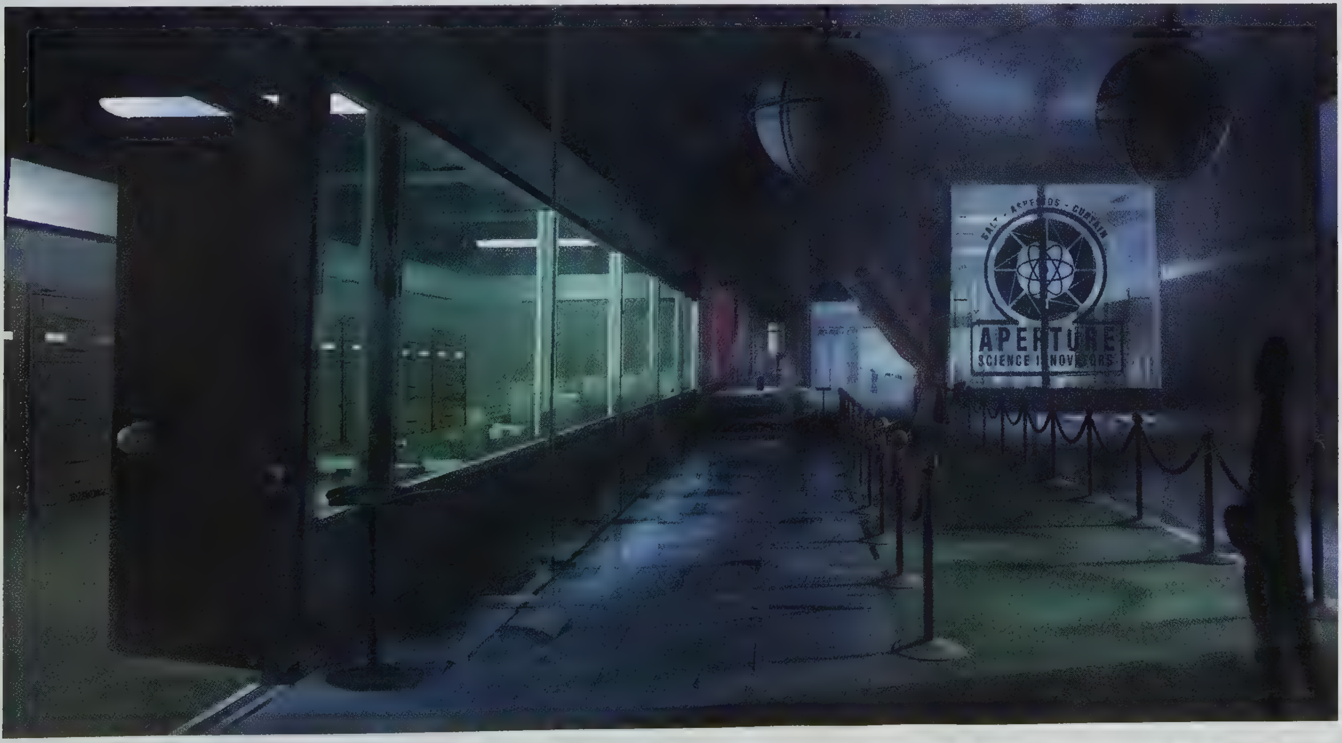
1970

aperture

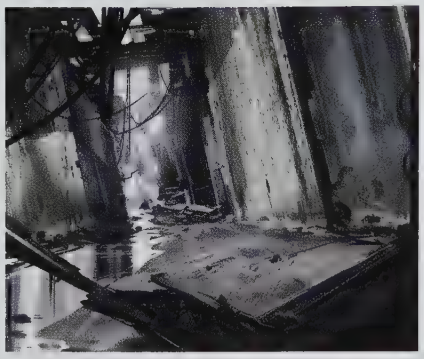
1980

APERTURE

LABORATORIES



SHE'S WATCHING YOU



jazz that's funny, it's smooth jazz that's played really loud. Really loud smooth jazz is even funnier.

I like the sound the light bridges make when you jump off them.

DF Right! The light bridges' footstep sounds were recorded mostly at Bad Animals. One of the Foley dudes there had a desk lamp that uses a tensioning spring. He found if you tap the thing, the spring will ring for an insane amount of time. So we just took the tail end of that to make it into this sort of electrical thing. My whole concept for the light bridge, was that they were made of electrical glass. So everything was based in either glass or ceramic, which is where that jumping sound comes from, or it's based in electricity, which I made from Styrofoam.

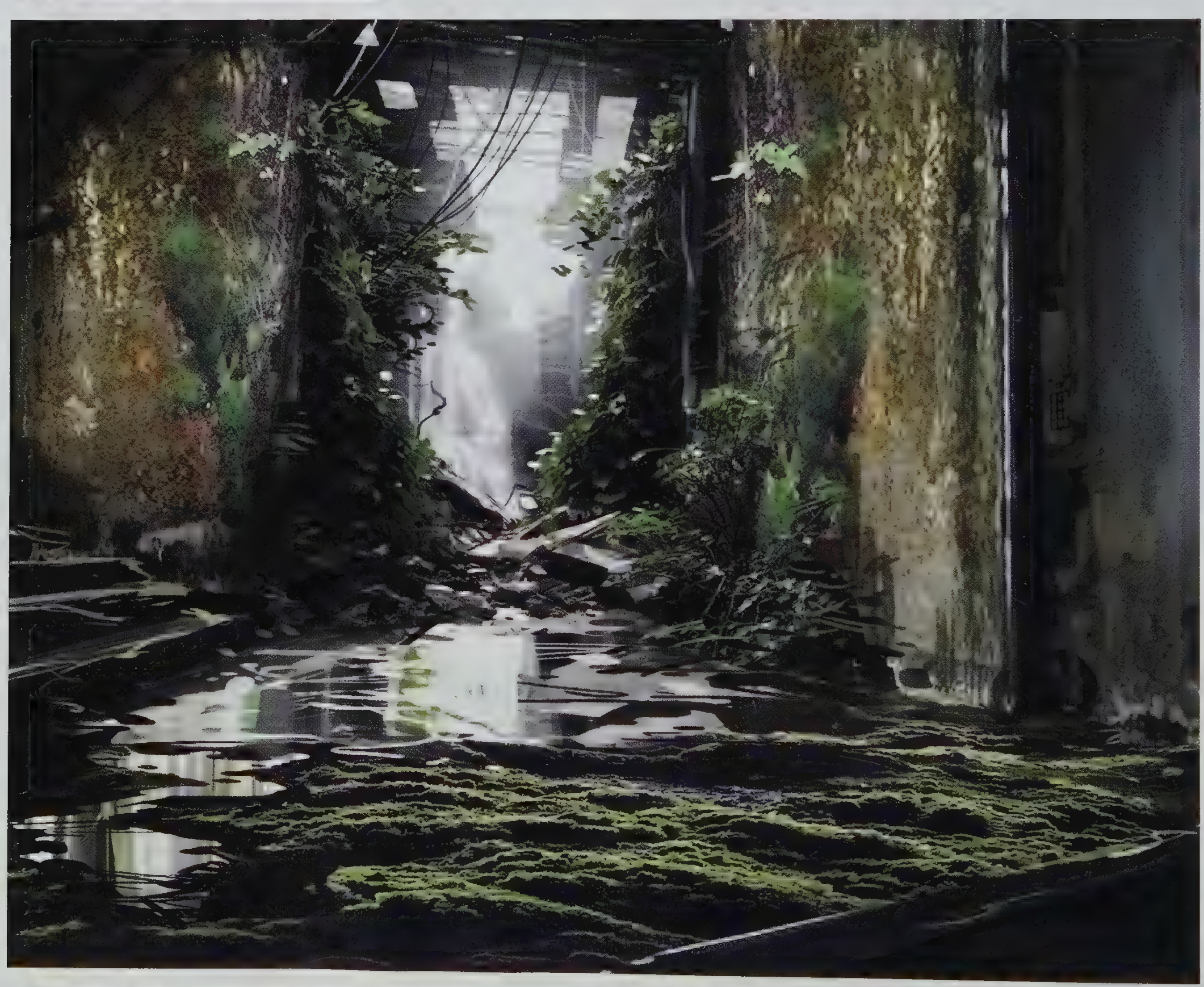
Who voiced the crap turrets?

MM The temp voices were done by Jay Pinkerton, one of the writers, and everybody thought it was really funny. The actor who came in to do the final voices pretty much just did a take on what Jay had already done.

DF Jay's idea was that if a perfectly functioning turret was a linear thinking idiot, a broken turret is going to be like a high paced slicky guy.

Is there anything else you can tell us about the turrets' song at the end of the game?

MM It evolved over the entire year I worked on the game. It started with Josh saying 'You know, the turrets have been alone for 50,000 years right? Maybe they have spent all this time there learning to sing. You might hear them doing these acapella pieces then you'd turn the corner and see them and they'd go silent right? We tried to get that gag in the game and it just didn't really work. So I was talking to Bill Van Buren, and he was like 'We should do a whole orchestra' and I was like 'Let's make it an opera!' So these ideas just kind of go out there and nothing happens.



Well, then I got the samples from Ellen and I wrote maybe half a dozen tunes. There's only two really in the game, but I wrote a whole bunch more. At one point someone heard me playing it in my office, so I gave it to one of the artists and they started freaking out! So the artists animated these two little quartets and we tried to get them into various places but they didn't really fit. Well then the writers walked in as we were working on this and they were like 'Hey wait a minute! That's it! That's the end of the game!' So the writers told me to do an orchestra and we'll make it the end of the game.

There's that Easter egg where the turrets are performing down below for that fat turret. It's sort of like, them plus the laser catcher, and the light bridges and the Companion Cube and the paints, and the beams and funnels. I mean, everything in that building makes music of some sort! They're so happy to have you there, they're singing to you. Like the Companion Cube for sure, is singing to you.

At the end GLaDOS has come around, right? She says 'Oh, I learned you're not my biggest enemy you're my best friend.' It's sort of that same idea, that the turrets are actually sad to see you go. They have nobody to shoot now. The operatic Italian that Ellen did is more or less gibberish, but it's along the lines of 'I'm going to miss you, goodbye my beloved'.

When Ellen was cast for Portal 1, was it a happy accident that she could sing?

MM I'm pretty sure that was a happy accident, because she had worked with us before in other capacities.

Who at Valve is the best at Portal?

DF Jeep is really good. Tajeev is like a ninja!
MM It certainly isn't me!

If you were Cave Johnson, what would you have the lab boys invent?

MM I kind of want a portal that's like a black hole that sucks you in and spits you out the other end, so you don't have to use gravity. You could just get sucked in. Actually, some sort of anti-gravity!

DF That depends on when. Am I at the end of his life? I'd want them to work on a cure for my cancer! Earlier on, something less practical. I like the idea of mantis men, so what else could we make into men?

MM Young Cave Johnson makes me think of cars with the blue gel on the bottom, so they just bounce around! That's about as absurd as he would be right? You just bounce to and fro in your vehicle.

Who would win in a fight, Alyx or Chell?

MM Oh, they'd just hang out and go get a drink I think.

DF Yeah, I don't think they would get into a fight.

MM Yeah it'd be hilarious, one would be shooting holes and the other would be…

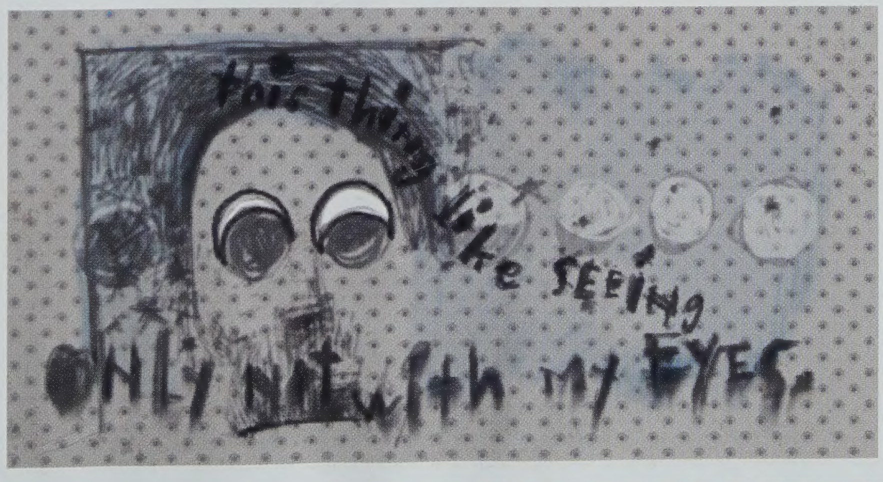
DF Shooting bullets!

MM Yeah, so I guess Chell would probably lose.

If you could place two portals anywhere, where would you put them?

MM I'd put one in my office and in my studio at home. I might put it at the bottom of my driveway just so I would still have to leave the house to go to work.

DF Yeah I'm simple. One in my living room, and the other in my office. Zero commute time.



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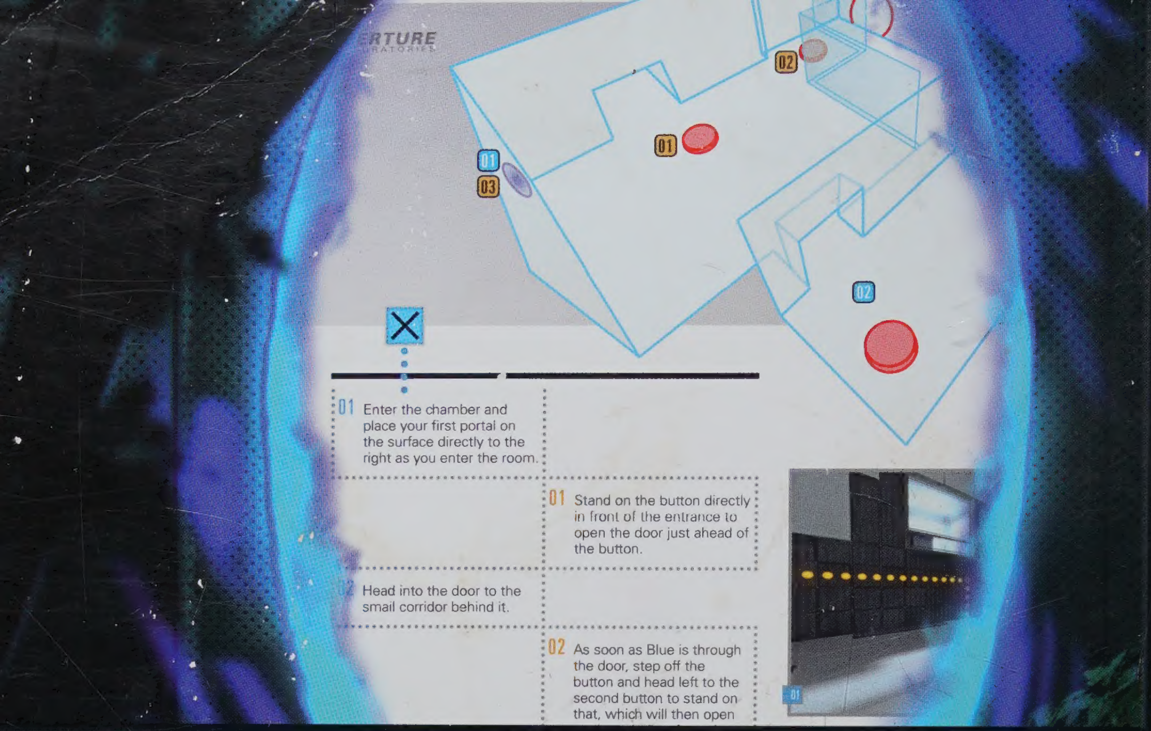

01 Enter the chamber and place your first portal on the surface directly to the right as you enter the room.

01 Stand on the button directly in front of the entrance to open the door just ahead of the button.

Head into the door to the small corridor behind it.

02 As soon as Blue is through the door, step off the button and head left to the second button to stand on that, which will then open

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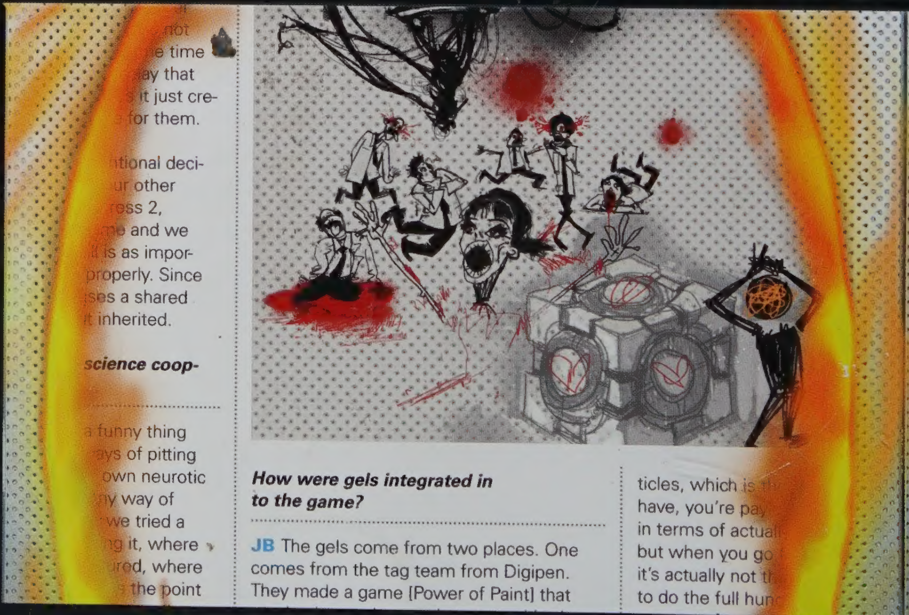

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How were gels integrated in to the game?

JB The gels come from two places. One comes from the tag team from Digipen. They made a game [Power of Paint] that

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